THE POLAR TIMES

July 2015

President's Message

Dear Fellow American Polar Society Members:

Here's some exciting news! We are now just four months away from one of the most noteworthy events in APS's history, when 15 of the world's foremost authorities on the Polar Regions will be discussing in detail their latest research findings and conclusions about "The Polar Oceans and Global Climate Change" at our Society's 80th Anniversary Symposium.

This year the symposium will be held at the famed Scripps Institution of Oceanography in La Jolla, California. Scripps, through the good offices of its director, Dr. Margaret Leinen, has also graciously agreed to co-host this historic conference, which will be open to the general public.

The symposium will begin the evening of Tuesday, 3 November, with a welcoming cocktail party at Scripps, followed on the morning of Wednesday, 4 November, with addresses by Dr. Margaret Leinen, and Dr. Kelly Falkner, Polar Programs Director of the National Science Foundation, and a keynote speech by Dr. Sylvia Earle, founder of Mission Blue and SEAlliance. It will conclude the evening of Thursday, 5 November, with a cocktail party and banquet at the La Jolla Shores Hotel. Mr. Norman Augustine, retired chairman and CEO of Lockheed Martin and former chair of the United States Blue Ribbon Panel for the U.S. Antarctic Program, will speak.

Your president, officers, and a number of very helpful governors have done everything possible to raise the money for this symposium and to make it accessible and affordable. In addition to generous donations on the part of many of you, APS life member Avery B. Russell; governor and life member Patty Elkus; APS member Richard Elkus; and APS corporate member CLERC Watches of Geneva, Switzerland, have provided the necessary major support to make this our most prestigious event possible.

Complete details on the symposium, including confirmed speakers and their affiliations and how to make reservations for the symposium and hotel, have already been sent to all APS members for whom we have e-mail addresses. This information is also to be found in this, the July issue of *The Polar Times*, as well as on the APS's web site at www.americanpolar.org.

Our 80th Anniversary Symposium will, I am certain, not only be extremely informative and thought-provoking, but will also provide a unique opportunity for APS members to meet and interact with those on the cutting edge of climate change research and with each other. It will further provide us all with an excellent opportunity to interest and recruit new members to our august ranks.

As your president, I urge each of you to make your reservations as soon as possible in order to join us for what promises to be one of the most important and exciting events in APS's history.

Let us make this the largest turnout for any event in APS's lengthy and most prestigious history!

I look forward to seeing and meeting with you all in just a few short months.

My warmest regards,

President, APS

Alfred Scott McLaren
Captain, USN (Ret.), Ph.D.

Membership Letter

Greetings from the coast of Maine!

The sun is shining, the blackflies are out, and my lawn needs mowing. Must be spring in New England! The APS Membership Center would like to remind all our members that email addresses are much preferred as our main way of communicating with you. If you have not already provided an accurate, up-to-date email address to us, please do so in order for us to maintain contact with you about important APS developments such as our upcoming symposium this fall. Just send me an email at aps@bluestreakme.com.

Your help in keeping our database of contact information up-to-date and current is much appreciated! Rest assured, we use the contact information you provide only to reach out to you. Thank you also to those of you who have brought in new APS members by referring them to us. Please continue to do so. There might be a colleague, a family member, a neighbor, or almost anyone who might be interested in the polar regions and might consider joining with us in the American Polar Society. If so, send them our way!

Thanks also to many of you who are taking the time to "re-up" with us (some for multiple years) ahead of when we send out membership reminders in October. This saves postage costs.

And as always, if you have any difficulty in receiving your issues of *The Polar Times* or have any questions, comments, or concerns, please do not hesitate to contact us. The strength of the American Polar Society is in its membership. I am honored to serve as your membership chair. ¶

Charles Lagerbom

APS Membership Chair

Please send all membership requests and contributions to:
Charles Lagerbom, Membership Chair
PoBox 300, Searsport, ME 04974

American Polar Society

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Regular membership dues are $25 a year ($35, foreign) and entitle members to receive *The Polar Times* twice a year. The American Polar Society is classified as a tax exempt organization under Sec 501(C)3 of the IRS Code. For more information about the American Polar Society, contact Charles Lagerbom, APS Membership Chair, at aps@bluestreakme.com

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Managing Editor: Capt. Cliff Bekkedahl, USN (Ret.)
631.267.7646 • cv1957@optonline.net

Production Editor: Charlotte Sinclaire
919.260.0037 • sinclaireca@gmail.com

Editorial Board
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AMERICAN POLAR SOCIETY
80th ANNIVERSARY MEETING and SYMPOSIUM

Co-Sponsor: Scripps Institution of Oceanography

Additional Sponsor: CLERC Watches

"THE POLAR OCEANS and GLOBAL CLIMATE CHANGE"

Tuesday, Nov. 3rd — Friday, Nov. 6th, 2015

Scripps Institution of Oceanography

University of California at La Jolla

Climate change in the past several decades has been apparent in many locations around the world, but nowhere else has it been more holistically apparent than in the Arctic, with its rising temperatures, melting glaciers, thawing permafrost, retreating sea ice cover, and bubbling methane releases. There has also been an array of impacts on native Arctic culture and numerous species, from the massive walrus and majestic polar bear to microscopic organisms living within the ice.

Climate change in Antarctica is no less important, as illustrated most vividly by the potential of additional sea level rise from any significant decay of the gigantic Antarctic ice sheet. Recent disintegration of ice shelves and retreat of grounding lines, assisted by warming ocean waters, could just be a teaser of what is to come.

In commemoration of its 80th anniversary, the American Polar Society will join with the Scripps Institution of Oceanography to bring together world-class leaders in science and diplomacy to discuss the role of polar oceans in global climate change. An abbreviated agenda of our symposium is on the reverse.

ABBREVIATED AGENDA

TUESDAY, Nov. 3. . . . . . *Registration – 5-7 p.m.*

WEDNESDAY, Nov. 4

Capt. Alfred S. McLaren, USN (Ret.), APS President . . . . . *Welcome/introduction*

Margaret Leinen, Ph.D., Director, Scripps Institution of Oceanography . . . . . *Welcome*

Kelly Falkner, Ph.D., Director, Polar Programs, National Science Foundation . . . . *What's New in Polar Programs at NSF*

Sylvia Earle, Ph.D. . . . . . *Keynote Speaker*

Walter Munk, Ph.D. . . . . . *[Title pending]*

Lynne Talley, Ph.D. . . . . . *Southern Ocean Carbon and Climate Observation and Modeling*

James Overland, Ph.D. . . . . . *Will Arctic Changes Lead to Mid-Latitude Weather Extremes in the Coming Decades?*

John Walsh, Ph.D. . . . . . *The Historical Sea ice record for the U.S. Maritime Arctic*

Claire Parkinson, Ph.D. . . . . . *Satellite-Observed Changes in arctic and Antarctic Sea Ice, Placed in the Broader Context of Climate Change*

Ola Johannessen, Ph.D. . . . *Teleconnections Between Arctic Sea ice Variations and Weather and Climate in Lower Latitudes*

THURSDAY, Nov. 5

Cecelia Bitz, Ph.D. . . . . . *Modeling the Future of Sea ice in the Polar Oceans*

Jackie Grebmeier, Ph.D. . . . . . *Marine Ecosystem Responses to Ongoing Environmental Changes in the Arctic*

Jerry Kooyman, Ph.D. . . . . . *Rise and Fall of Emperor Penguin Colony Populations in the Ross Sea*

David Ainley, Ph.D. . . . . . *Adélie Penguins Adapt to a Changing Ross Sea Climate and Food Web*

Julian Dowdeswell, Ph.D. . . . . . *The Marine Record of Ice-Sheet Growth and Decay*

Ted Scambos, Ph.D. . . . . . *The Ongoing Evolution of the Larsen Ice Shelf*

David VanderZwaag . . . . . *Climate Change and Ocean Governance in the Arctic: Conflict, Cooperation, and Challenges*

Lawson Brigham, Ph.D. . . . . . *Arctic Marine Use: Responses to Climate Change and Globalization*

ROUNDTABLE . . . . . *The Future of the Oceans: What Has Not Been Addressed?*

DINNER/BANQUET . . . . . **7–9:30 p.m.**

Norman Augustine . . . . . *The Science of Climate Change — and the Change in the Climate of Science*

AWARDS AND PRESENTATIONS . . . . . **8:30–9:30 p.m.**

OTHER EVENTS

Book signings . . . . . **Wednesday and Thursday at noon**

End-of-day sessions (beer-and-wine mixers) . . . . . **Wednesday and Thursday**

Board of Governors meeting (may be "closed session") . . . . . **Friday, 8:30–11:30 a.m.**

2015 American Polar Society Symposium Registration Form — Nov. 3 through Nov. 6

Thanks for registering to attend the 2015 American Polar Society Symposium in La Jolla, California, to be held Nov. 3–6. This form is for use with **CHECKS ONLY**; no credit cards accepted with this form.

If you prefer to pay by credit card or PayPal, please visit our web site at www.americanpolar.org, click on the "Read More" button for our story about the symposium, and then follow the "Register Now" button to our online registration form. **PLEASE NOTE: Ticket sales end 3 Nov 2015.**

Mail this form with your check to: **Mr. Rob Flint, 185 Bear Gulch Road, Woodside, CA 94062.**

First Name _____ Last Name _____

Street Address Line 1 _____

Street Address Line 2 _____

City _____ State _____ Zip Code _____ Country _____

E-mail _____ Phone Number _____

Ticket Orders: Please select the type of registration you would like, and designate quantity desired and total enclosed.

(NOTE: Cocktail/banquet tickets are included in all but student registrations.)

Individual	$175 x (Qty)	_____	=	Total $ _____
Individual + One	$250 x (Qty)	_____	=	Total $ _____
Student (High school/college undergrad)	$75 x (Qty)	_____	=	Total $ _____
Nov. 5 Cocktail Party & Grand Banquet	$75 x (Qty)	_____	=	Total $ _____

IMPORTANT NOTE FOR "PLUS-ONE"

Please write your "plus one" name below to ensure a name tag is waiting for your guest.

_____

American Polar Society Symposium

November 3-6, 2015
Scripps Institution Of Oceanography
University Of California at La Jolla
Topic: The Polar Oceans And Global Climate Change

By now, every member of APS should be aware of our upcoming symposium in November. This is a major undertaking by the Society and a cadre of key sponsors. Our website is filled with details, several email broadcasts have been launched, and included in your mailer for this issue of *The Polar Times* are fact sheets introducing the world-renowned speakers and other participants who will be on hand for the action-packed agenda that has been crafted for this one-of-a-kind event.

Make the decision to attend — enjoy some time in southern California before winter sets in, and support the American Polar Society and those who have committed to the perpetuation of this venerable organization as it celebrates its 80th year of service to the Polar interests of this nation.

Registration can be made either by following the instructions on the enclosed form or on the Internet. Do one or the other — but do it! This is a not-to-be-missed symposium.

Please note the incentive offered for spouses, partners, and students. And for you east-coasters and mid-coasters, now's the time to take that trip to California you've been contemplating but putting off. Tie it together with a visit to San Diego attractions, Monterey, or Los Angeles. Seize the moment!

Cliche Time

It takes a village to...well, maybe not a whole village but certainly a dedicated cadre of folk to conceive of and then follow through on the nitty-gritty of putting together a world-class scientific and educational event such as our November 2015 symposium.

Everyone knows that it's the 20 percent who do 80 percent or more of the work in any organizational project and, once again, our elected officers and the members of the APS Board of Governors have stepped up to the challenge. They will be recognized in a forthcoming issue of *The Polar Times*. But to ensure that members are aware that there are other organizations, institutions, and individuals who have been drawn to the critical oceanic issues that the symposium agenda addresses, we take the following pages to introduce key sponsors who have joined APS in this effort and without whom this event simply would not happen. We are proud to be associated with them and grateful for their invaluable support. ¶

SCRIPPS INSTITUTION OF OCEANOGRAPHY
UC San Diego

Courtesy Scripps Institution of Oceanography

Researchers make measurements of a reef during a survey of coral disease ecology near Palmyra Island in the central Pacific Ocean, October 2012.

This is a well-known name to most of us, but with even a minimal exploration of their website, one comes away astounded by the breadth and depth of this organization's oceanic and scientific accomplishments over the 11 decades of its existence.

Hosting and supporting the American Polar Society for its 2015 symposium falls squarely into the mission of Scripps Institute: "To seek, teach and communicate scientific understanding of the oceans, atmosphere, Earth, and other planets for the benefit of society and the environment." One cannot imagine a better and more timely fit than Scripps and the APS in the presentation of topics under the heading of "The Polar Oceans and Global Climate Change."

Margaret Leinen, Ph.D., the Director Of Scripps Institution of Oceanography, will offer welcoming remarks and, over the course of the two day agenda, three distinguished scholars from the Scripps family of oceanographers will make presentations in their areas of expertise. Walter Munk, Ph.D., and Lynne Talley, Ph.D., will address the impact of changing circulations in the Southern and Arctic oceans, and Jerry Kooyman, Ph.D., will describe the rise and fall of Emperor Penguin populations in the Ross Sea.

So much of the success of any such program depends on the logistics and administration afforded by the hosting entity, both in planning and execution, and in this regard we are indebted to Patty and Rick Elkus and staff for their guidance and professional support. ¶

A Different Kind ...

The American Polar Society is privileged and excited to join hands in this endeavor with a corporate sponsor that uniquely revamped its business model to engage in advocacy and tangible support of the environment — specifically, the vast oceans that cover 70 percent of the Earth's surface. CLERC (*www.clercwatches.com*), the historic and famed Swiss watchmaker whose contemporary line of luxury dive watches makes it a stand-alone leader in the competitive field of high-end timewear, has launched an international program called "Openwater Heroes Ocean Conservancy Initiative."

CLERC CEO Gerald Clerc, himself a certified scuba diver, recently announced the inauguration of the Openwater Heroes Initiative and embraces the conviction that the oceans are being threatened by industrialization, consumption, and energy exploration. Moreover, he believes the life they contain is a gift to all mankind and deserves protection and preservation. CLERC strives to give back to the oceans for the inspiration it provided their designers and engineers, and from this sense of connectivity came the idea of the Openwater Heroes.

Each year, or as circumstances warrant, CLERC — through Openwater Heroes — will promote significant ocean causes and the selfless heroes who too often remain unknown and uncelebrated. The American Polar Society, with its focus on the polar oceans, fits this template with ease and welcomes with gratitude the interest and support extended by this corporate citizen of the world.

The foregoing sketch of CLERC's involvement in ocean conservancy offers but a glimpse of the depth and breadth of their corporate vision in, under, and over the oceans of the world. Go to https://www.facebook.com/openwaterheroes, for example, and find their relationship with Sub Aviator Systems. Or, jump straight to Sub Aviators Systems' homepage (http://www.subaviators.com) and read about their partnership with CLERC. ¶

openwater~heroes

In Our Midst ...

Avery Battle Russell

It can't be news to anyone that almost all non-profit organizations have difficulty maintaining their existence, let alone finding ways to gather the resources to underwrite and conduct a major undertaking such as our upcoming symposium. Okay, if you happen to have a whole village handy, you might get something off the ground. But today, the proverbial village, fiscally unencumbered, without bridges and tunnels, and with their pension plans fully funded, are scarcer than narwhales in the Hudson River. Pity the 501C3s of the world nearly all need help. Bake sales don't make it. What's needed is an angel... that special someone who sees the inherent value in what the non-profit is trying to accomplish and opens their heart and their check book to help make it happen.

And yes, we have one — an angel in our midst! We take this opportunity to extend on behalf of all members of the American Polar Society our heartfelt gratitude and deep appreciation to Life Member Avery Battle Russell who, in the four short years she has been a member of APS, has given more than $20,000 to our society. She has generously pledged another $10,000 to ensure the success of our forthcoming 80th Anniversary Symposium in La Jolla in November of this year.

When asked why, she has repeatedly stated, "I believe strongly in the Society's potential and the role its members can and should play in addressing the myriad serious challenges posed by global climate change."

Avery, formerly a senior executive of Carnegie Corporation of New York, where she was editor of *The Carnegie Quarterly*, public affairs officer, and a major grant maker, particularly in its journalism programs, has worked in the nonprofit philanthropic field for over 33 years. She is a member of the famed Explorers Club, headquartered in New York City.

She now lives, and writes, in the Rocky Mountains of Colorado with her husband, APS President Fred McLaren.

Avery Russell, on behalf of APS and all its members, we cannot thank you enough! May we always prove worthy of your most enthusiastic and generous support. ¶

Sub-Antarctic Islands

A Review of Islands Outside the Antarctic Treaty Area, but Claimed by Treaty Parties

Islands, or island groups, north of the Antarctic Treaty boundary of 60°S, have geographic, exploration history, or political ties to several signatories to the Treaty. They are often referred to as sub-Antarctic islands (Higham, 1991; Dingwall, 1995; Landau, 2007), or peri-Antarctic islands as coined by Dr. Bernard Stonehouse, Jeff Rubin (2005), and Robert K. Headland. Most are located between latitudes 40°S to 55°S, and are discussed here with regard to political issues, unique wildlife, alien introductions that affected habitats for endemic fauna and flora, territorial claims, and tourism. Rugged, mountainous scenery and glaciers offer attractions to visitors on some of the islands, as do opportunities to add new species to birding life lists for serious birders and "twitchers." Countries and territories can be added to lists for world travelers, for example, the Travelers' Century Club lists a total of 324 as of January 1, 2014. Philatelists also treasure cacheted envelopes and postmarks that can be procured from postal services found on some of the islands in the following list.

Clients on tour vessels to remote islands in the sub-Antarctic area are common on itineraries for the above reasons and for the adventure of something new. Landau (2007) reviews tourism on many of those listed below.

> Several islands have permanent scientific and meteorological stations. Most of the islands are popular for tour ship visits.

Several islands have permanent scientific and meteorological stations. Most of the islands are popular for tour ship visits and passengers because about half of the 17 species of penguins (or 18, depending on the literature source) can be found on them, with other penguin species (Galapagos, Humboldt/Peru), Black-Footed/South Africa), in the New Zealand area and Australia. Some islands are listed as UNESCO World Heritage Sites, and one of them is also a UNESCO Biosphere Reserve. Most of these islands require a permit for visits, some have a fees requirement, and visitor guidelines that are designed to protect wildlife and the environment in general, similar to guidelines that tour ships in Antarctica follow as members of IAATO.

One of the islands discussed here is within the Treaty area (Peter I Øy) and was the subject of a claim by Norway in 1931 prior to its claim of part of the Antarctic continent prior to 1939, but listed here because it can be visited by tour vessels.

Photo by John Splettstoesser, 1997

Black-faced Sheathbills on helicopter skids.

The following islands are included in this review (following Headland's list of "Exotic Terrestrial Mammals in Antarctic Regions" (2012), updated and unpublished in April 2015).

The islands are listed from west to east starting at Greenwich meridian. Coordinates of latitude and longitude are approximate or rounded, depending on the reference source. Most are from Wikipedia, "List of Antarctic and Sub-antarctic Islands." The content of each is either an entry in a Wikipedia search, or else from this authors' observations during visits, as marked by (*). Latin names are shown for penguin species.

Bouvetøya (54°25'S, 3°21'E) is a Norwegian dependency, occasionally visited by tour ships. It is the remotest land on Earth.

Prince Edward Islands (46°45'S, 38°56'E) are a pair: Prince Edward Island and Marion Island (below) are part of South African territory. The latter has had a permanent scientific station from 1947.

(*)**Iles Crozet** (46°45'S, 51°45'E) are four main islands and part of French territory.

(*)(**Alfred Faure** on Ile de la Possession (46°26'S, 51°51'E) is a station operated by France from 1963 — visited by tour ship in December 1992.

(*)**Iles Kerguelen** (49°S, 70°E) with about 300 islands of many sizes are part of French territory.

(*)**Port-aux-Français** (49°21'S, 70°13'E), is a station occupied by France from 1951— visited by tour ship in December 1992.

(*)**Heard Island and McDonald Island** (53°S, 73°50'E).

This Australian possession formerly had a base on Atlas Cove and also had shore-based sealing and whaling operations, unoccupied except for occasional summer personnel for research programs. The dominant mountain, Big Ben, is an active volcano. Mawson Peak, the highest part (2,745 m/9,006 ft), was climbed in the past, with a lava flow from the summit observed in January 1993. Tour ships visited in 1992 by helicopter, in 1992 by Zodiac, and in 1997 by helicopter.

Sheathbills (black-faced, or lesser, Sheathbill — *Chionis minor*) are the objective of birders who strive to include this species on a list that includes the Snowy Sheathbill (*Chionis albus*) observed in Tierra del Fuego, Falkland Islands and Antarctic Peninsula.

(*)**Ile Amsterdam** (37°49'S, 77°33'E) is part of French territory.

(*)**Base Martin de Viviès** is the French base on the island from 1949,

conducting weather and other observations, visited by tour ship in 1993.

(*)**Ile Saint-Paul** (38°43'S, 77°31'E) is part of French territory, a volcanic island with the Northern Rockhopper penguin species *(Eudyptes (chrysocoma) moseleyi)*, a variation of the species with unusually long yellow feathers on the head.

(*)**Macquarie Island** (54°37'S, 158°51'E), a possession of Australia, with a permanent station from 1948 occasionally visited by tour ships to view colonies of King Penguins and Royal Penguins. The island was recently involved in a program of elimination of alien species, ridding the island of cats, rats, and rabbits.

Photo by John Shultis©2003, 1993

King Penguins in a rush to enter the water, Macquarie Island.

(*)**Auckland Islands** (50°31'S, 166°17'E) including a main island and several lesser ones, is part of New Zealand territory, and visited by tour vessels to see Yellow-Eyed Penguins (*Megadyptes antipodes*), Hooker's sea lions and Austral Parakeets. A program of elimination of cattle, rabbits and mice was successful, although mice, cats, and swine remain on the main island.

(*)**Campbell Island** (52°32'S, 169°09'E) — A weather station operated by the New Zealand government occupied a facility from 1941 to 1995, converted to an automatic weather station in 1995, leaving the island unoccupied. A lengthy wooden boardwalk was constructed by station personnel that led to an upper ridge where Royal Albatrosses nested. Cattle and sheep were introduced to the island, but were all gone by 1992 and 1984 (respectively). A rat-eradication program was instituted in 2001 by the New Zealand Department of Conservation, and the island is presently rat-free as of 2003. A rat-trap device (photo) is an example of a testing program to determine whether residual rats would visit it following the formal program of ridding them by using toxic bait.

Photo by John Shultis©2003, 1993

Rat-trap device used in testing program.

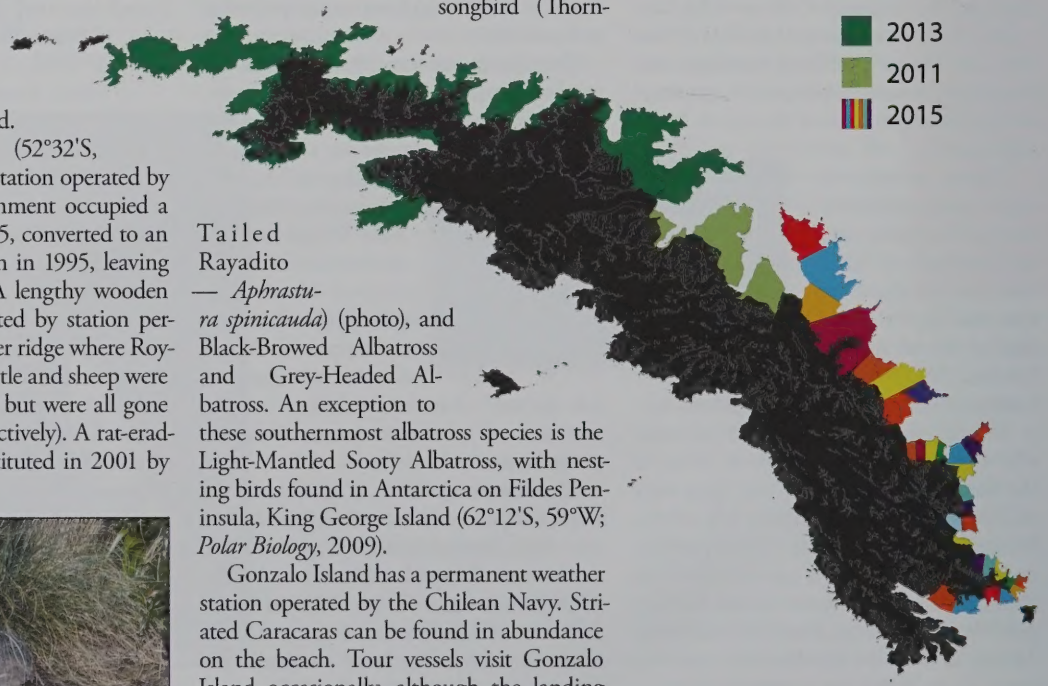
(*)**Islas Diego Ramirez** (56°29'S, 68° 44'W), one main island with several islets and rocks.

Southernmost occurrence of Rockhopper penguins, a songbird (Thorn-Tailed Rayadito — *Aphrastura spinicauda*) (photo), and Black-Browed Albatross and Grey-Headed Albatross. An exception to these southernmost albatross species is the Light-Mantled Sooty Albatross, with nesting birds found in Antarctica on Fildes Peninsula, King George Island (62°12'S, 59°W; *Polar Biology*, 2009).

Gonzalo Island has a permanent weather station operated by the Chilean Navy. Striated Caracaras can be found in abundance on the beach. Tour vessels visit Gonzalo Island occasionally, although the landing beach is subject to heavy surf conditions.

(*)**South Georgia** (53°58' to 54°53'S, 35°47' to 38°01'W) — is a possession of the U.K. Overseas Territory (South Georgia and the South Sandwich Islands — SGSSI), with its own independent government that had a long history of exploitation, first of Antarctic fur seals in the late 1700s and 1800s, followed by whales (beginning in 1904, continuing through 1965) and southern elephant seals, with shore-based whaling stations in several harbors. One of them — Grytviken — is the site of restoration of facilities, a museum, post office, whalers cemetery, and commonly visited by tour ships and fishing vessels that stop for licensing purposes. The cemetery includes the graves of Sir Ernest Shackleton and Frank Wild.

A habitat restoration program of eradication of introduced mammals began in 2010 by the South Georgia Heritage Trust (a non-profit charity), implementing to date the world's largest program of its type. The project used a toxic bait for the rodents (*brodifacoum*) dropped by helicopters in des-



Map of South Georgia showing areas of rodent-baiting in color. Courtesy of South Georgia Heritage Trust and Friends of South Georgia Island

ignated areas, with a final phase conducted in 2015 that will hopefully eliminate all rats and mice from the island. The color map of baiting areas illustrates the target areas over a period of several years, with Phase3 being the latest, and hopefully, final year of the program. The South Georgia Pipit (*Anthus antarcticus*) is the sole songbird on South Georgia and neighboring islands, and was adversely affected by rats that decimated the ground-nesting birds, along with other species that include South Georgia Pintails and diving and burrowing petrels that now have a chance to survive.

Photo by John Splettstoesser, early 1990s

Thorn-Tailed Rayadito on Gonzalo Island.

Addendum:

Rat Island, Aleutian Islands — Used as a test case for rat-eradication of Brown Rats (*Rattus norvegicus*) — declared rat-free in 2009. The island was renamed Hawadax Island (Aleut name meaning "entry" and "welcome"w) in 2012.

A detailed article of the habitat restoration program in South Georgia is planned for the January 2016 issue of *The Polar Times*.

An introduction of three groups of reindeer from Norway to the island for food and sport began in 1911. All were eliminated by autumn 2015. Spot checks in the next few years will determine whether all rats, mice and reindeer have indeed been eliminated. Reindeer were responsible for reduction of much vegetation and resulting soil erosion for many years, leading to the program of eradication of populations that had reached several thousands.

(*)**South Sandwich Islands** (56°18' to 59°27'S, 26°20' to 28°08'W), a chain of eleven volcanic islands. Thule Island was the site of a naval station, Corbeta Uruguay, established by Argentina in 1976, destroyed by the British following the Falkland Islands war with Argentina in 1982. The Southern Thule Island group, is less than half a degree of latitude north of 60°S, the northern boundary of the area covered by the Antarctic Treaty.

Photo by John Splettstoesser, circa 1990s

Reindeer at Leith Harbor whaling station.

Gough Island (40°20'S, 10°W) includes a weather station from 1955 operated by the South African government and is off-limits to tour vessels. A population of mice has been shown to affect nesting Tristan Albatross chicks and petrel chicks, feasting on them to the point of death of some chicks.

(*)**Tristan da Cunha Islands** — Edinburgh of the Seven Seas, the settlement on Tristan da Cunha (37°04'S, 12°19'W), the world's most remote inhabited island, has a population of some 300, a post office and a population that welcomes visitors to sell craft products made by the islanders. Tristan is very popular with tour and other ships that visit the settlement when landing conditions at the harbor allow Zodiac and other small craft to land. Crops of potatoes and other vegetables provide food for the islanders, and fishing for the local crawfish (*Jasus tristani*) is shipped to the United States and Japan.

Nearby (*) **Nightingale Island** (37°25'S, 12°28'W) has the Northern Rockhopper Penguin species (*Eudyptes (chrysocoma) moseleyi*) on a part of the island where Tristanians have vacation or holiday cabins and related structures.

(*)**Peter I Øy** (68°47'S, 90°35'W) is within the Antarctic Treaty area and was claimed by Norway in 1931, before its claim of territory on the Antarctic continent in 1939. Visits have been made as part of tour ship itineraries, with landings by Zodiac boats, for example, but not regularly because of difficult landing conditions. ¶

Photo by Brian Houston

Northern Rockhopper Penguins, Nightingale Island.

Robert K. Headland, Historian and Archivist at the Scott Polar Research Institute, and Denise Landau, representing the U.K. South Georgia Heritage Trust, reviewed the manuscript and provided many helpful comments and suggestions.

Visit www.americanpolar.org for a reading list to accompany this "Due South" column. Under "APS Quick Links" (bottom of home page), click on "Polar Compendium."

Editor's Note: *The following is a heavily and selectively excerpted version of a policy brief written earlier this Spring for an EU ACCESS project by APS member Captain Lawson Brigham, U.S. Coast Guard (Ret.). It describes the May 2015 implementation and the substance of the IMO Polar Code establishing international standards for commercial and passenger ships operating in Arctic and Antarctic waters.*

Captain Brigham has been involved in the development of the Polar Code for over two decades, reaching back to his years of active service with the Coast Guard. Recently (the last two years), he has been a member of the U.S. Delegation to IMO working on Polar Code negotiations. Proud of his participation in this historic achievement, Captain Lawson considers the Polar Code as a "seminal sea change for the polar regions ... a new regime in a world where new regimes do not come along very often."

International Maritime Organization Polar Code for Ships Operating in Polar Waters

by Lawson Brigham, U.S. Coast Guard (Ret.)

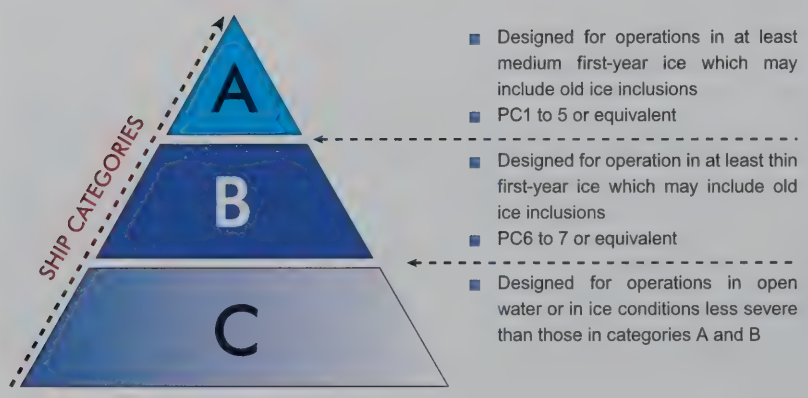
In May 2015, a historic milestone for marine safety and the protection of Arctic people and the marine environment in polar waters was reached when the International Maritime Organization (IMO) initiated the implementation phase for the Polar Code.

2015

The Polar Code establishes binding or mandatory international standards for new and existing commercial carriers and passenger ships operating in Arctic and Antarctic waters. The Code covers ship structural standards; required marine safety equipment; training and experience standards for the ship officers and crew; and environmental rules regarding oil, noxious liquids, sewage and garbage. All maritime states will have the challenge of implementing the Polar Code in their national legal systems by 1 January 2017. The Arctic states share the challenge and responsibility of showing strong leadership during the Code's implementation phase and articulating to a global community the importance and immediacy of international safety and environmental rules for polar ships.

The Polar Code at its core addresses marine safety and environmental challenges for ships operating in remote, sometimes extreme, conditions where marine infrastructure is limited or non-existent. The Polar Code is also directly related to the future protection of Arctic people, especially those in Arctic coastal communities and their traditional lifestyles. The IMO is seeking to create a uniform, nondiscriminatory set of rules and regulations that will result in a level playing field for all marine operators. Importantly, the Polar Code is a set of amendments to two existing IMO safety and environmental protection instruments — the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution from Ships (MARPOL) — to adapt and enhance ship systems for operations in both Arctic and Antarctic waters. A third key element being addressed is the experience and training of ship's officers and crew, especially the ice navigators in the pilothouse on voyages in ice-covered polar waters.

The IMO Polar Code ... will be ... a beginning of a long process to further protect polar waters in an era of increasing marine operations.


SHIP CATEGORIES
A
B
C
Designed for operations in at least medium first-year ice which may include old ice inclusions
PC1 to 5 or equivalent
Designed for operation in at least thin first-year ice which may include old ice inclusions
PC6 to 7 or equivalent
Designed for operations in open water or in ice conditions less severe than those in categories A and B

Outlook

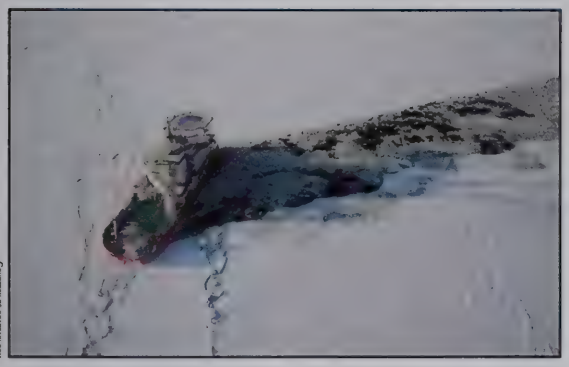
More than two decades have passed since an IMO Outside Working Group began a serious attempt and process to develop unified polar ship rules. The IMO Polar Code that will come into force on 1 January 2017 will be a key framework agreement and a beginning of a long process to further protect polar waters in an era of increasing marine operations. The new Polar Code is not comprehensive and will not address such issues (and impacts) as black carbon from ship emissions, heavy fuel oil use in the Arctic and ballast water discharge. Future designation of the Arctic Ocean as an IMO emission control area will surely need to be addressed. The issue of fishing vessels and other types of ships in polar waters (not dealt with by the new Code) must also be considered by IMO. These and other challenges will be addressed by additional amendments to SOLAS and MARPOL, and refinements to the requirements for polar mariner training and experience. Further initiatives will be developed following the recognition by the international maritime community by 2017 of the Polar Code as the new IMO ship standards for marine safety and environmental protection in all polar waters.

Boundaries

The Polar Code will be mandatory for all commercial carriers and passenger ships of 500 tons or more. It will be applicable in all Antarctic waters south of 60 degrees south. This boundary around the Antarc-

(Continued at right, page 9)

Russia's Oblique Icebreaker "Baltika" Tested in Arctic Ice



Courtesy of gCaptain.com

***gcaptain.com*, 14 April 2015, by Rob Almeida**—*Baltika*, the first ship ever built with an asymmetric hull form, demonstrated what she was designed to do while conducting full scale ice trials recently.

The ship was designed by Aker Arctic as an icebreaking escort vessel with a hull that allows it to break ice while operating ahead, astern, or sideways. The latter operation is utilized to open a channel for vessels that are much wider than the actual beam of the relatively small icebreaker.

The vessel was launched last year and departed from Murmansk on 20 March 2015 to conduct full scale ice trials with the Aker Arctic team on board. The crew sailed around the northern tip of Novaya Zemlya and across the Kara Sea to the Gulf of Ob, close to the Sabetta terminal area where the tests were conducted.

Aker Arctic says the testing program consisted of performance tests in two distinct ice thicknesses in ahead and astern directions as well as in the oblique mode. Various operational tests were also carried out in order to determine the maneuverability and operational capability of the vessel. The thickness and strength of the ice was measured in the areas where tests were carried out. An automatic measurement system was set up to record ice loads on the ship's hull through the whole three-week voyage which concluded in Murmansk on Friday, 10 April.

"Although the ice conditions in the area were on the upper end of the vessel's designed icebreaking capability and the ice in the Gulf of Ob was considerably stronger than typical sea ice, *Baltika* exceeded expectations and the required performance targets were passed with a clear margin," says Aker Arctic in a statement on their website.

"The vessel could break 1.2-metre level ice in continuous motion when proceeding bow first and could achieve a speed exceeding 3 knots in astern direction. The oblique mode, which had never been tested before in real life, also worked extremely well and the vessel fulfilled all the design requirements. During operational tests, *Baltika* also demonstrated excellent maneuverability and rubble clearing capability in the port of Sabetta as well as ability to penetrate heavy compressive ice ridges in the Kara Sea without ramming."

According to Project Manager Mika Hovilainen who was on board the vessel during the ice trials, "*Baltika*'s voyage to the Gulf of Ob proves the exceptional operational capability of the oblique icebreaker concept in very difficult ice conditions. The vessel could operate in ice conditions that exceeded the design criteria used as the basis of the vessel concept. *Baltika* could carry out the same operations as conventional icebreakers with just half of the propulsion power as well as perform maneuvers which are not possible for any other vessel currently in service." ¶

Vessel Particulars

Builder:	Arctech Helsinki Shipyard in cooperation with Shipyard Yantar JSC
Design:	Aker ARC 100
Owner:	Federal Agency for Maritime and River Transport of Russia (Rosmorrechflot)
Operator:	Russian Marine Emergency Rescue Service (FGI Gosmorspassluzhba)
Length	76.4 m
Breadth	overall 20.5 m
Draught	6.3 m
Power:	Diesel-electric 9MW via (3) Wärtsilä 9L26 genset
Propulsion	(3) 2.5 MW Steerprop azimuth thrusters
Dynamic positioning	Navis Engineering
Speed	14 knots
Speed in flat ice	1.0 m thick 3.0 knots
Crew	24
Special personnel	12
Sea endurance	20 days (24 persons)
Class:	Russian Maritime Register of Shipping, Icebreaker

(Continued from page 8)

tic continent corresponds to the northern boundary of the Antarctic Treaty.

The boundary in the Arctic for application of the Polar Code includes adjustments due the nature of the warmer waters in the North Atlantic. In the Bering Sea, the Polar Code boundary will be 60 degrees north; the boundary moves slightly south to include all of Greenland and then runs northeast along the east Greenland coast and north of Iceland until it intersects with the Russian Arctic coast in the Barents Sea. All of Iceland, Norway and the Kola Peninsula in northwest Russia are not considered within the Polar Code area since they are ice-free year-round.

The carriers and passenger vessels to be certified will be required to obtain a Polar Ship Certificate from the flag state and will also be required to carry a Polar Water Operational Manual that is unique to a given polar ship. The Polar Ship Certificate would classify a ship for operation in polar waters as one of three ship types. ¶

Polar Class	General Description
PC1	Year-round operation in all ice-covered waters
PC2	Year-round operation in moderate multi-year ice conditions
PC3	Year-round operation in second-year ice which may include multi-year ice inclusions
PC4	Year-round operation in thick first-year ice which may include old ice inclusions
PC5	Year-round operation in medium first-year ice which may include old ice inclusions
PC6	Summer / autumn operation in medium first-year ice which may include old ice inclusions
PC7	Summer / autumn operation in thin first-year ice which may include old ice inclusions

Polar Diplomacy

by Ray Arnaudo

Arctic

The biggest event in the polar diplomatic front this year has been the United States taking over the Chair of the Arctic Council on April 24. The Chairmanship rotates every two years and the U.S. last held it 1998-2000. *(Editor's note: This author was the last U.S. chair.)* The Canadians wrapped up their term with some solid accomplishments:

- Arctic Economic Council: The Canadians urged the Arctic Council to establish the Arctic Economic Council, an independent body, which encourages private sector interests from local and multinational corporations to use this forum for collaboration and cooperative investments.
- **Indigenous wellbeing:** Canada attempted to refocus the Council's attention on the health of the people of the Arctic, attempting to steer the Council towards efforts to address the needs of indigenous people's mental and physical wellbeing.
- **Black carbon and methane:** Strong efforts by Canada to encourage the Council to reduce emissions of black carbon and methane could help slow global warming, especially in the Arctic. The Council is planning to adopt an ambitious collective goal on black carbon by the next ministerial meeting in 2017.
- **Enhancing prevention for oil spills:** Cooperation will be pursued through the Arctic Council and other bodies such as the Arctic Offshore Regulators Forum.

So, the U.S. has been left a fair amount on its plate from the Canadians, in addition to its own ambitious goals. The U.S. team continues to be led by its Senior Arctic official, Julie Gourley, from the Department's bureau of Oceans and International Environmental and Scientific Affairs, who coordinates the US effort, in close cooperation with State officials from Alaska. The US Chair for the next two years is David Balton, the Deputy Assistant Secretary of State for Oceans and Fisheries. And Admiral Robert J. Papp, Jr. is the U.S. Special Representative for the Arctic, with overall responsibility for international Arctic affairs.

As noted in a previous column, the three major goals of the U.S. Chairmanship are: 1) improving economic and living conditions in Arctic communities; 2) Arctic Ocean safety, security and stewardship; and 3) addressing the impacts of climate change. The overriding theme of the U.S. Chairmanship is "One Arctic: Shared Opportunities, Challenges and Responsibilities," which recognizes the peaceful and stable nature of the Arctic. The U.S. chairmanship will conclude in spring 2017 with a Ministerial meeting in Alaska, at which point the United States will hand the chairmanship to Finland. We will have a new administration in 2017, and a new Secretary of State, who one assumes will continue the now-established tradition of attending the Ministerial.

Here's a little more detail of what the U.S. expects to do under its three broad goals:

- **Improve economic and living conditions in Arctic communities**
  - — Promote the development of renewable energy
  - — Seek a better understanding of freshwater security in the Arctic
  - — Improve telecommunications infrastructure
  - — Support mental wellness, including suicide prevention and resilience
  - — Develop cooperation with the newly-created Arctic Economic Council
  - — Reduce black carbon output
  - — Promote better community sanitation and public health
- **Arctic Ocean safety, security and stewardship**
  - — Improve search and rescue efforts in the Arctic;
  - — Develop marine protected areas;
  - — Explore the creation of a regional seas Program for the Arctic Ocean;
  - — Investigate Arctic Ocean acidification;
  - — Implement the Agreement on Cooperation on Marine Oil Pollution, Preparedness and response in the Arctic.
- **Addressing the impacts of climate change**
  - — Support Arctic climate adaptation and resilience efforts
  - — Create a Pan-Arctic Digital Elevation Map
  - — Focus on short-lived climate pollutants, such as black carbon and methane emissions;

All agree this is a very ambitious program, but Arctic partner countries are encouraged by the proposals.

Antarctic

Concerning the other pole, the 38th Antarctic Treaty Consultative Meeting was hosted by Bulgaria this year, held in Sofia, June 1-10. The President of Bulgaria Rosen Plevneliev opened the meeting. Over 400 participants attended, including representatives from all 29 Consultative Parties, or voting members, listed here in case anyone needs a refresher on Member States: Argentina, Australia, Belgium, Brazil, Bulgaria, Chile, China, Czech Republic, Ecuador, Finland, France, Germany, India, Italy, Japan, the Republic of Korea, the Netherlands, New Zealand, Norway, Peru, Poland, the Russian Federation, South Africa, Spain, Sweden, Ukraine, the United Kingdom of Great Britain and Northern Ireland, the United States of America, and Uruguay. Treaty parties meet annually for the purpose of exchanging information, holding consultations and considering and recommending to their Governments measures in furtherance of the principles and objectives of the Treaty. Other signatories, or Contracting Parties, also attended, including Belarus, Canada, Colombia, Finland, Kazakhstan, Malaysia, Monaco, Mongolia, Portugal, Romania, Turkey, and Venezuela. There are a total of 52 signatories to the Treaty, including the two newest members, Kazakhstan and Mongolia.

There were no major struggles at this meeting, as the Antarctic Treaty has settled into an established cooperative network of generally like-minded countries, overseeing the management of our activities in Antarctica. The meeting approved a total of eighteen Measures updating management plans for protected areas within Antarctic and two new historic sites, including one designating an ancient Soviet tractor as a protected artifact. The treaty parties also took a harder look at the climate change issue and agreed to support more research on climate change-related scientific activity in Antarctica, including research in support of the objective of the next meeting of the United Nations Framework Convention on Climate Change (COP21). On another very positive note, the U.S. and Russia announced their joint successful efforts to remove the old Soviet RTGs (radioisotope thermoelectric generators), which had been frozen in the ice years ago. The cooperation between the U.S. Depart-

ment of Energy and Russia's Rosatom and Antarctic agencies finally succeeded in making Antarctica completely nuclear-free.

Parties also held two special, one-day workshops, one on education and outreach efforts regarding science in Antarctica and the matter of competent authorities in regulating Antarctic tourism. It is predicted than around 40,000 tourists will visit Antarctica next year, most aboard cruise ships. It was also agreed to hold a one-day symposium to be held at the next ATCM to celebrate the 25th anniversary of the Environmental Protocol to the Antarctic Treaty. Regarding the CEP, Dr. Polly Penhale, the U.S. representative from the National science Foundation, was elected for a second term as Vice-Chair of the Committee for Environmental Protection (CEP). Lastly, the issue of Unmanned Aerial Vehicles, or UAVs was discussed. It will be placed on the agenda for next year's meeting, as the potential for disturbance of wildlife and interference with other activities could pose a serious issue.

And, in an issue not specifically on the agenda, the effort to set aside a marine protected area in the Ross Sea was also discussed in the hallways and side conversations. It is a matter to be discussed at the next annual meeting of CCAMLR- the Commission for the Conservation of Marine Living Resources- in October, but there is a concerted effort to convince Russia and China, who currently stand opposed, to allow the creation of a protected region in the Ross Sea.

Chile will host ATCM 39, in Santiago, Chile, in June, 2016. ¶

(Ray Arnaudo, a retired State Department official who led the US international polar effort for many years, writes the occasional column on US diplomatic efforts in the polar regions)

News from the Polar Archives

by Laura Kissel, Polar Curator, Byrd Polar and Climate Research Center Archival Program, The Ohio State University

The Polar Archives celebrates its 25th anniversary this year and will celebrate with a series of events this fall.

- "**Ice Matters: An exhibition commemorating the 25th anniversary of the Polar Archives**" will open on October 5, 2015 in the Thompson Library Gallery and will be curated by Jason Cervenec, Laura Kissel and Lynn Lay. This exhibit will feature the historical collections of the Polar Archives along with contemporary items representative of the science of the Byrd Polar and Climate Research Center. The exhibit will illustrate the impact of exploration in the polar and other ice-covered regions on our understanding of the earth's climate. Big themes for the exhibit include research, transportation, and communication. More specific themes will address daily life in harsh environments, including lodging and food, as well as media and pop culture in communication of scientific concepts. Notable historical events and achievements as documented by the historical collections of the polar archives will be highlighted. Visitors to the gallery can expect to see a wide array of fascinating items, as well as some great interactive components.
- On October 20, 2015 the Wexner Center for the arts will premiere ***Byrd 1933.*** This new film was created by independent filmmaker and media specialist Pamela Theodotou from footage collected on Admiral Byrd's second Antarctic expedition from 1933-35. Funding for preservation of the original footage was provided by the National Film Preservation Foundation. The film's trailer is available online at https://vimeo.com/106352841.

Other events are still in the planning stages, so please visit our website: go.osu.edu/polararchives or follow us on social media (https://www.facebook.com/BPRCAP) for the most current information. ¶

What's New on the APS Web Site?

New entries to the APS website (www.americanpolar.org) have just been added. Look for updates on polar treaties, committees, and the like, courtesy of R.K. (Bob) Headland, Archivist and Historian at Scott Polar Research Institute, University of Cambridge.

Headland's previous addition was of a list of vessels that transited the Northwest Passage, beginning with Roald Amundsen (1903-06) and continuing through the 2014 summer. Included lately are four listings:

- SCAR And the Antarctic Treaty (rev. March 2015)
- Polar Treaties and Scientific Committees (2015)
- Antarctic Treaty (March 2015)
- Nuclear icebreaker list

As regards treaties, the latest developments of the Antarctic Treaty include new members, now totaling 52 or so, with Monaco (2008), Portugal (2010), Malaysia (2011), Pakistan (2012), Kazakhstan (2015), and Mongolia (2015). The number of Consultative (voting) Parties totals 29, the remainder being Acceding Parties, and participating as observers.

The Antarctic Treaty Consultative Parties met on 1-10 June 2015, so some of the above might have changed. Check the website occasionally to keep in touch.

Brian Shoemaker's thesis

In addition, the APS website includes the thesis that Brian Shoemaker wrote for his Master of Philosophy (MPhil.) Degree at the University of Cambridge in 1989. Brian's interest in Antarctica began long before that date, when he was in the U.S. Navy and had a distinguished career in Antarctica and also the Arctic. His biography is on the APS website at the link "Officers and Governors" and "Editor Emeritus." Without Brian taking over the responsibility of ***The Polar Times***, it is possible that we would not be writing this for the July 2015 issue. An excellent summary of Brian's career is in the book issued by APS in 2013, "Seven Decades and Seven Years of Service to the Polar Community, an Anniversary Edition," p. 163-165, by Jeff Rubin. We are pleased to include Brian's MPhil. Thesis in the website for his detailed study of an aspect of the Antarctic Treaty:

"Antarctic Treaty Inspections: Historical Significance and Future Impact."

Other items of interest

- Satellite imagery of average sea ice concentration and comparison for summer and winter, 2014.
- Ice-capable research vessel *Sikuliaq*, owned by NSF and home-ported in Alaska for support of high-latitude research.

Visit www.americanpolar.org to see these articles. Under "APS Quick Links" (bottom of home page), click on "Polar Compendium." ¶

An Antarctic Trip to Fulfill a Promise

by Peter Baiamonte

I lost my uncle, Matthew Baiamonte, to pancreatic cancer in February of 2013. We were very close, so he left me in charge of his affairs and made only one request. His longtime partner, Linda Walcott, had always dreamed of an Antarctic trip, but they had never taken the journey. He wanted her to go after his death, and he wanted to pay for her expenses.

As a commercial photographer, I was hoping to capture the overall experience from the point of view of a tourist on this type of expedition.

In January 2015, after over a year of planning, Linda, my fiancée Midori, and I found ourselves boarding Quark Expeditions's ship *Sea Spirit* in Ushuaia, Argentina. We had booked a 12-day expedition exploring the Antarctic Peninsula, including two optional activities: a chance to camp on land one night, and sea kayaking.

I am a commercial photographer in New York City. I focused on trying to capture the experience of my fellow passengers and the amazing, otherworldly landscape we experienced. I was hoping to capture the overall experience from the point of view of a tourist on this type of expedition.

We set sail on January 8 and had incredible luck

with the weather during the entire trip; beautiful days, and easy seas crossing the Drake Passage, both ways.

Thanks to the favorable weather, we were able to have two, or sometimes three, excursions each day, as we explored the peninsula. The sea kayaking we had booked proved to be a fantastic, intimate means of experiencing the environment.

Thanks to the favorable weather, we were able to have two, or sometimes three, excursions each day.

We began our exploration of the Antarctic peninsula at our southernmost destinations and spent the rest of the trip making our way back north along the peninsula. We approached the Melchior Islands first, then traveled down the Gerlache Strait to the entrance of the Lemaire Channel, where we had our first outing. Conditions were calm, so while the rest of the passengers toured in Zodiacs, we got right into our kayaks for the first of six kayak outings.

After leaving the Lemaire Channel, we visited Cuverville Island; camped on Rongé Island; kayaked in Paradise Harbor; mailed postcards from Port Lockroy; took a Zodiac cruise around the dramatic landscape of Spert Island; visited penguin colonies at Trinity Island, Brown Bluff, and Hannah Point; toured the

The author/photographer with his fiancé Midori, ashore in Antarctica for the first time after kayaking in Paradise Harbor.

whaling station at Deception Island; and paddled around Cierva Cove and Goudin Island. An amazing amount of exploration for such a short trip!

We all had the trip of a lifetime. The Quark staff and guides were fantastic, and they worked hard to give us as many experiences as possible. The trip fulfilled all of Linda's dreams and my uncle's last wishes. Midori and I met people who I believe will be lifelong friends, and we've already begun to talk of a trip to the Arctic one day! ¶ ***EDITOR'S NOTE:*** *All photos (except at left) are by the author.*

Kayaking close to Adelie penguins on sea ice near Brown Bluff.

An early morning Zodiac cruise around Spert Island.

Meeting our first seal in the Lemaire Channel.

Midori absorbs the view of Paradise Harbor.

A Polar Bear Observation

Excerpt from email to Editor from Patrick Toomey, Ice Navigation Specialist and retired Canadian Coast Guard Captain:

The Arctic ice conditions of the winter of 2014-2015 do seem to indicate that, overall, there was less ice than average. However, in the Canadian Arctic, the ice coverage was on the high side of the average due to the prolonged bitter winter over the Canadian Arctic, which same weather spilled into the U.S., especially the New England states. The large amount of old ice which came out of the M'Clintock Channel into Victoria Straits in 2014 and drifted as far south as Queen Maud Gulf before the freeze-up is still there, which is going to make that particular bottleneck quite difficult to navigate all season 2015. There is still some old ice in M'Clintock Channel, but not much behind it, so I think that 2016 will be a better navigation season all around, especially for the yachting fraternity.

I agree with Morten Jorgenson about the hunting of polar bears being a non-sustainable industry. I, too, would like to see sport hunting for polar bears be banned altogether and subsistence hunting for native peoples be highly regulated — if it has to continue at all — though I really don't see how native rights to hunt can be legally stopped. Nevertheless, the thinning ice and the longer periods of fasting ashore for the more southerly polar bear populations is visibly taking its toll. It was good to see some ice all through the season in 2014, because we saw 19 bears, mostly on ice, while [cruising] on the *Latitude*, and the bears on the ice were in far better shape than those we sighted on shore in northeast Baffin Island and on Devon Island. Almost all of the bears on the ice had recent kills to feed on. We actually saw one solitary bear make a kill as we approached. ¶

Polar Bears Won't Thrive On Land Food

New report contradicted previous behavior studies.

Associated Press, **ANCHORAGE, ALASKA, 1 April 2015, by Dan Joling**—A group of researchers say polar bears forced off melting sea ice will not find enough food to replace their current diet of fat-laden marine mammals such as seals, a conclusion that contradicts studies indicating that bears may be benefiting from bird eggs, berries and other land food sources.

Few bears are using land food and what they find can't replace lipid-rich ringed or bearded seals, said Karyn Rode, a U.S. Geological Survey research wildlife biologist and lead author of the review paper in the journal, *Frontiers in Ecology and the Environment.*

The paper by federal and academic researchers reviews current polar bear research. It's aimed at recent research documenting bears feeding on land and suggestions that those foods are becoming more important for them, which could increase their chance for survival as summer sea ice recedes, preventing seal hunting.

But not everyone agrees with the conclusions reached by Rode and the other authors at Washington State University and Polar Bear International.

Robert Rockwell, a population biologist and ecologist at City College of New York, who is also affiliated with the American Museum of Natural History, has conducted research at western Hudson Bay for 47 years. He has watched polar bears change their behavior to eat goose eggs and caribou calves, he said. "I find it hard to believe they're going to get nothing out of it," he said.

Polar bears are marine mammals that spend most of their lives on sea ice. They use the frozen ocean to hunt, often catching ringed seals.

The world's 19 polar bear populations are divided into four regions. In three, entire populations historically remained on sea ice year-round. The fourth has seasonal sea ice and includes Hudson Bay, where polar bears have always spent time on land.

The Bush administration in 2008 listed polar bears as threatened because of an alarming loss of summer sea ice and climate models indicating major declines in polar bear distribution and abundance.

Land food such as berries can be abundant for polar bears but low quality, Rode said. Eggs from ground nests are higher quality but limited. Polar bears feeding on berries lose significant weight, Rode said. "There is evidence that some bears are using terrestrial sources in a place such as Hudson Bay, but there's been no evidence that it's contributing a significant amount to their energy requirements," Rode said. ¶

Photo by John Baltzegaard, Aug. 1975

Native Alaskan dismembering a ringed seal to provide food for sled dogs, Barrow, Alaska. Note the blubber layer under the hide, which is normally eaten first when seals are hunted by polar bears.

Contaminants Also a Threat to Polar Bears

***(e) Science News (Biology & Nature),* 7 April 2015**—The polar bear (*Ursus maritimus*), one of the largest carnivorous mammals on Earth, is being made vulnerable by the series of dangers it faces. An international team has established a guide to evaluate the condition of its health and although the polar bear's biggest threat is climate change, plastic pollution and environmental contaminants in its habitat are starting to affect its endocrine system and reproduction. Climate change is undoubtedly the main threat to polar bears (*Ursus maritimus*). They also suffer from nutritional stress, reduction of polar ice, human contact and diseases and parasites. But that's not all.

Polar bear family treks across sea ice.

Photo by John Shelmydeser

"The health of the arctic polar bear is being attacked from all fronts, but among many other factors is the exposure to environmental contaminants," María Jesús Obregón explains. Obregón is a research professor at the Biomedical Research Institute (a CSIC/Madrid Autonomous University centre) and one of the authors of the study published in *Environmental Research.*

The study, led by Norwegian scientists, stresses that plastic pollution and environmental contaminants are affecting the endocrine system and the reproductive system of this mammal. "This is especially significant in this endangered species," adds Obregón.

The researchers focused on the exposure of the arctic polar bear that lives in Greenland to growing levels of environmental contaminants. "A wide variety of organochlorine compounds and pesticides have an effect on the thyroid hormones in plasma, tissues and deiodinase enzymes, which are in charge of stabilising the thyroid hormones in tissues," explains the expert.

The study analysed more than 50 organohalogen contaminants and their metabolites in bear plasma and tissue, compared with the aforementioned thyroid parameters in the liver, muscle and kidney of seven adult bears. Previous studies had already demonstrated the relationship between the presence of contaminants and the altered plasmatic levels of the thyroid hormones in the arctic wildlife, but it is the first time that they have been linked to tissue alteration.

A Guide to Monitor Bear Health

Concerned about the loss of habitat ice for the polar bear, which is becoming increasingly threatened, the international team of scientists has created a guide to monitor the health of this great carnivore. The study, published in 'Science of the Total Environment', gathers 15 measures which allow the factors facilitating its conservation in the Arctic Circle to be determined.

The aim of the researchers is to establish complete monitoring programmes which include the health condition of the polar bears as a priority. "Environmental changes, especially loss of habitat ice, have triggered concerns for the health of this mammal. For this reason, the effective and consistent monitoring of its health needs to be unequivocally defined," the study warns.

The scientists used the Delphi method, a questionnaire with the opinions and experience of 13 specialists from four different countries, to propose a definition of polar bear health. The main threats identified are climate change, nutritional stress, chronic physiological stress, diseases and parasites, and increasing exposure to competitors. Exposure to contaminants is the third largest threat.

"We still don't know to what extent environmental changes will affect polar bear health and therefore its conservation," say the authors of the study. For this reason, the guide will be a starting place to contextualise the health of the mammal and act in a context of environmental change. ¶

New Target for High-Tech Surveillance: Polar Bears

A lunch room laugher's thought turned into a "Hey, why not?" moment.

Seth Stapleton, a wildlife biologist at the University of Minnesota and a couple of his colleagues hit upon the idea of tracking and counting polar bears by high-precision satellite photos.

One of the major problems in polar bear conservation and study that we have cited in these pages and in prior issues is that of determining an accurate count of the polar bear population. Albeit large, they are white against white and constantly on the move. Tough to keep track of!

Polar bears are big — six to nine feet in length and 400 to 1,200 pounds. Satellites can show anything that is 20 inches or more across, and when polar bears go ashore on darker ground, they show up very clearly on satellite photos.

Current satellite technology cannot yet capture accurate images of polar bears on ice, but predictions are that the impending next generation of satellite cameras will see objects in the 12-inch-wide range. This will reveal large animals despite a white ice background. Photo images are pricey, but measuring their cost against aircraft and on-the-ground surveillance makes the satellite imagery an attractive alternative. Go Gophers! ¶

In our past two editions of *The Polar Times* we featured articles addressing the "plight of the polar bear" and found that current conditions and future prospects afforded a mixed and muddied picture. An important — indeed, the most important — element in establishing conservation policy was their number, and this remains uncertain.

Moreover, our research revealed an ambivalence among expert opinion as to the role played by legal and illegal hunting of polar bears. The bandwagon overflows with global warming enthusiasts shouting to the house tops that climate change and melting Arctic sea ice spell certain doom for the species within the next several decades. Maybe so, but the author of the following book makes the case that the annual kill of 850 to 1000 polar bears — the greatest percentage thereof being for sport and trophy purposes — is by far the dominant vector driving polar bears to extinction.

If this subject engages your interest and concern, then *Polar Bears on the Edge* by Morten Jorgenson warrants your attention. ¶

Polar Bears on the Edge: Heading for Extinction While Management Fails

by Morten Jorgenson
Spitsbergen-Svalbard.com, 28 April 2015
Paperback, 218 pp. ISBN-13: 987-3-937903-23-1
Kindle version: ISBN-13: 978-3-937903-25-5
Available at https://www.indiegogo.com/projects/polar-bears-on-the-edge#/story

Reviewed by Cliff Bekkedahl

Our author gets right to it: "Sadly, greed and cowardice widely corrupt Arctic politics, and Arctic politics widely corrupt Arctic science. That corruption of science feeds back into politics. Politicians, managers, scientists, lobbyists, media, community leaders, and elders are not living up to their responsibility."

His contention? There exists this illogical formula: Global warming threatens polar bears. Indeed, they are seriously endangered. Even so, hunting pressure on polar bears continues and, theoretically, does not pose a threat to the species. Go figure! If you plan to read on, you have to fully absorb the hypocrisy embedded in this twisted formula.

Conservation of this threatened species has been replaced by something called "management." Polar bears have become a resource to be managed. Who made this decision? The same people who coin phrases like "harvested" or "annual take," — "as if polar bears were a cash crop."

In turn, this mind-set restructures polar bear conservation into the business vernacular of "quota management." Bears become "units," legally decorated licenses are sold or awarded, inspectors and inspectees coalesce, a community of mutual and self-serving interests is formed … ever thus!

Much of the book revolves around the math — uncertain numbers bouncing off each other — but the reader has the option of embracing high-end or low-end conclusions, and the end results of either does not bode well for the species.

A solid number: The five range states (nations) of the Arctic rim all have polar bears in their territory. Three allow hunting in some form — U.S. (Alaska), limited subsistence hunting; Canada, sport or trophy hunting and subsistence hunting; and Greenland/Denmark the same as Canada, on a much lower scale. Norway prohibits hunting and enforces the rule. Russia officially prohibits hunting but it is generally recognized that a significant amount of poaching and illegal trade in pelts and body parts takes place.

Of the three nations that permit hunting, a total of more than 850 permits are issued, with the great bulk of these granted by Canada. The author contends that the realistic number of annual kills in recent years (all-in) is 1,000 polar bears. Internet searches will produce lower numbers, but they are often modified by uncertainties such as illegal kills/poaching in range states and contentious claims as to the degree of Russian involvement.

Readers can, if they wish, take the low end, say the published number of permits issued (850) and reject the speculative additions that the author offers to reach 1,000 but, in either case, the number of annual kills is unsustainable and, moreover, unimaginable in a civilized world — but happening nonetheless.

But the foregoing is only a part of the numbers game. In our July 2014 edition of *The Polar Times,* we waxed eloquent on the uncertain and often contradictory numbers produced by international conservation groups like the ICUN and its PBSG and the WWC, et al. Granting that accurate counts of such nomadic animals is a tricky business, we were still perplexed by the variances offered and the inexplicable way in which they were recast in relatively short periods of time — census numbers such as 27,000 to 30,000, or 23,000 to 25,000 or, as reported by the PBSG in late fall of 2014, 18,000 to 23,000. The official numbers are declining as this latest estimate reveals, but the reasons why are not specified.

From several perspectives the total population of polar bears is an important number — principally as a scientific benchmark for measuring the overall health and well-being of the species and determining its future prospects in a changing world environ-

ment; and practically, as a reference point for increasing or decreasing the permissible kills in the short- and long-term. There are other reasons for monitoring the total population, but these two go directly to the issue of survival or extinction of the specie.

Author Jorgenson will convince you that 1,000 man-kills per annum is an unsustainable number and that this slaughter — this vanity killing (e.g., harvesting for bearskin rugs) — combined with impending and extant consequences of climate change and pollution in the Arctic will push the polar bear over the edge to extinction.

Why not simply put an end to this senseless "sport" of killing polar bears? This question was put to me a few weeks ago by fifth graders to whom I was lecturing on things Arctic. These kids knew that, today, very few people on the Rim actually eat polar bear meat, and they knew that their clothes were made of other kinds of material. They also knew that these trophy hunters have snowmobiles, fast power-boats, high-powered rifles with fancy telescopes, and some even had helicopters to locate and target bears. And they knew that Eskimo hunters had none of these machines and hunting tools in the old days. Hunting polar bears today is no extension of "traditional ways" as many proponents argue. Even fifth graders know better.

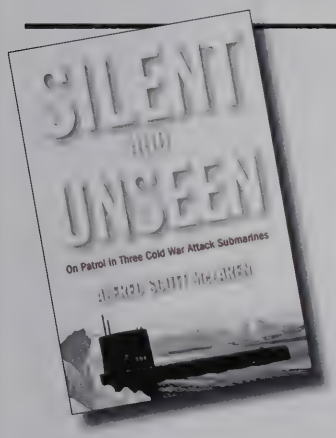
So why, with all the immense pressure hunting imposes on the polar bear populations, does one civilized nation permit and support a tiny industry that employs but a few of its citizens and reaps but a minuscule fraction of its GDP for the purpose of satisfying the macho impulses of a wealthy few of whom, ironically, even fewer are its own citizens?

Author Jorgenson very carefully unlocks the answer to this seemingly simple but actually complex question. Look back to our opening paragraph — greed, cowardice, and corruption of the few wends its way across many communities or, as he describes them, stakeholders, who, for the most part, are a collection of minor players that cumulatively find common advantage in fudging facts and looking away from reality. A scientist or scientific organization inflates a number to satisfy a politician who may have something to do with a grant, and the number is used to allow a bureaucrat to issue a few more permits; and the hunting club proprietor serves a couple more clients who have just jetted in for the experience of a lifetime, and so it goes—upward, always upward. And the bear count? Well, that's hard to determine, as everyone knows. So, a few additional kills here and there can't make a real difference, right? And so it goes!

One other appealing dimension to this book, and a measure of the author's intellectual integrity, is he doesn't feel the need to make his case by invoking "global warming" or presenting apocalyptic scenarios of bears drowning in droves as they swarm ashore from shrinking ice packs. He asserts that polar bears, as a species, have endured and survived several interglacial warming periods and could possibly do so again, were it not for the additional pressure of unsustainable hunting. He deplores the climate change activists who use the declining numbers of bears in various areas as evidence of the catastrophic impact of "climate change." As an American politician we all know and love would put it, "It's the hunting, stupid!" Kill 5 to 6 percent of a population reproducing at the rate of 3 to 4 percent, and the results are inevitable. Add to this the extraordinary but unpredictable impact of climate change, and it's paws on the edge.

Author Jorgenson is presenting his thesis to the public worldwide using the relatively new device of "crowd funding." He is a man with a mission — drastic reduction or, better yet, the end of hunting polar bears for sport or trophy purposes. I urge you to visit the link https://www.indiegogo.com/projects/polar-bears-on-the-edge#/story to learn more about his book and his program.

Do your part by participating and by sending a copy of *Polar Bears on the Edge* to a friend or colleague — especially those in Canada. ¶



Silent and Unseen: On Patrol in Three Cold War Attack Submarines

by Alfred Scott McLaren
U.S. Naval Institute Press
Annapolis Maryland , May 2015
256 pp. $39.95 (hardcover)
ISBN: 978-1-61251-845-9

Reviewed by Cliff Bekkedahl

This is the second of a planned three-volume series by APS President Fred McLaren in which he immerses readers into life aboard those technological wonders, nuclear-powered submarines, and takes them north in the '60s and '70s to explore the underside of the massive ice pack that covers the Arctic Sea.

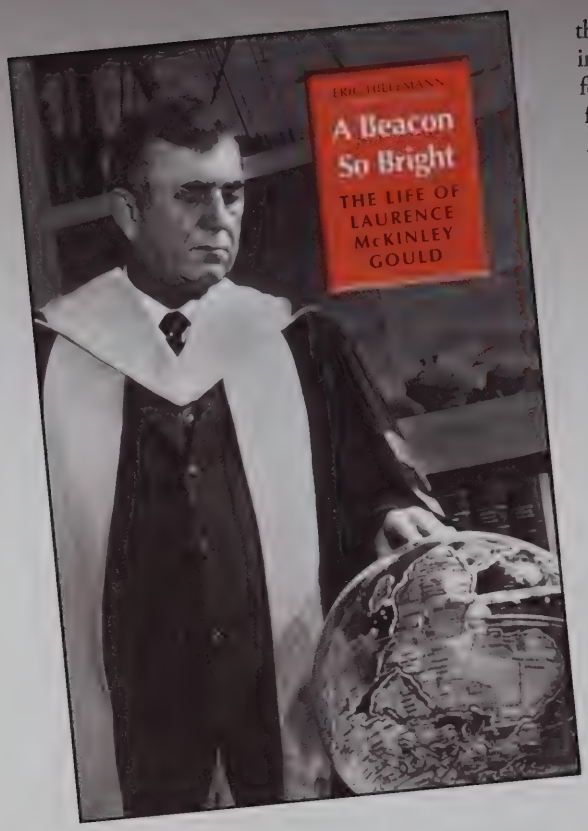
His first volume, *Unknown Waters*, reviewed in these pages in July 2008, tells of the exploits of the USS *Queenfish* (SSN-651) as it surveyed (while submerged) over 3,000 miles of uncharted waters along the Siberian littoral at the height of the Cold War. His command of *Queenfish* was the culmination of many years of submarine service by a Naval Academy graduate working his way up the professional ladder, first in WWII diesel boats and then from selection by Admiral Rickover into the nuclear Navy.

Silent and Unseen addresses those formative years and the experiences and testing that challenge every submariner as they qualify for greater responsibility in their boat and for the all-important professional respect of their peers and seniors.

The "Cold War" brought about many changes in the quality and capability of our major weapons systems and none so significant as the introduction in the U.S. Navy of the nuclear-powered submarine, with its unlimited range, its ability to remain submerged for months or more, and the myriad of quieting technologies that made it virtually undetectable to Soviet counterforces. Fred McLaren and his contemporaries in the submarine service — many of whom served with or were mentored by APS honorees like Jim Calvert and George Steele — were the consummate warriors of that era: silent and unseen. With their incredibly agile and capable boats, well tested in the open oceans, the unexplored under-the ice regions of the Arctic Sea became an irresistible and extremely promising operating environment for submarine sailors, and they recognized that command of the under-ice world would belong to whoever "got there firstest with the mostest." *Silent and Unseen* is a story told by someone who was there as young, newly qualified submarine officer who later became a seasoned commander with many, many under-ice deployments in his personal log book.

Captain McLaren carries forward from his first book, *Unknown Waters*, a writing style that carefully describes important events and the technical and operational details that a serious reader requires, but he also leavens the pages with humorous anecdotes involving shipmates, officers and crew, colleagues, wives, families, and friends — the whole submarine family.

Those who enjoyed and admired *Unknown Waters* will come away with the same respect and enthusiasm for *Silent and Unseen*, and they will join this reviewer in his impatient wait for the closing volume of the promised trilogy. ¶



A Beacon So Bright: The Life of Laurence McKinley Gould

by Eric Hillemann
Carleton College, 2012,
658 pp., $24.95

Reviewed by John Splettstoesser

This book is a tribute to Larry M. Gould, a man who is synonymous with Antarctica, the U.S. college where he was on the faculty for 30 years (1932-1962), and president for 17 years. Eric Hilleman, archivist at the college, deserves much credit for researching everything there is to know about Larry Gould, and finding the time to put it together in more than 600 pages.

Carleton College is in Northfield, Minnesota, and was a major part of the career of geologist Laurence M. Gould. Before his time at Carleton he was named Second-in-Command on the Antarctic expedition led by Richard E. Byrd in 1928-30. Byrd's evaluation of Gould was phrased as "A splendid fellow, competent, a brilliant geologist, and popular with men..... has proper respect for the seriousness of the job.... is greatly interested in the scientific results.... I am fortunate to have him." (p. 82, footnote). Gould was to prove his worth during the expedition and later in life in whatever aspect in which he was involved. His book, *Cold: The Record of an Antarctic Sledge Journey*, published in 1931, is an excellent record of his time on the expedition and is recommended for readers interested in this early part of his career. The book was published again in 1984 and 2011. (See my review in *The Polar Times*, July 2013, p. 32.) Gould's earlier career was with the U.S. Army ambulance service and also with expeditions in Greenland and the Canadian Arctic.

Eric Hillemann, author of this book and archivist at Carleton College, has done a remarkable job in assembling the details of Laurence Gould, a man who is credited with so many achievements in his life that it is difficult to focus on only a few. For one, it was during his 17-year career as college president that Carleton was recognized as among the nation's top three coeducational colleges, "a little Harvard in academic distinction," and "rose to preeminence in the midwest only after Dr. Gould became president." As college president, consuming though his administrative duties were, he made sure to keep his balance by finding time to feed the soul — not only through his reading, but also through music (Brahms being a longtime favorite), religious observance, gardening, and fishing for trout (p. 434).

He was at Carleton for 30 years, 1932–1962, carving out a niche for his presence by having features named for him at Carleton as well as in Antarctica. For example, p. 653 in the Index lists Gould Bay and Mount Gould, Antarctica; Gould Lake, Greenland; Carleton College's Library; the Gould-Simpson building at the University of Arizona, Tucson, Gould's next move after retiring from Carleton; and the U.S. research vessel *Laurence M. Gould*.

Also academically, Gould's 26th Honorary Degree (his last) was at the University of Arizona in 1982.

Gould's career also included continued interest in the polar regions, with his role in planning for the International Geophysical Year, 1957-58; President of SCAR (Scientific Committee on Antarctic Research); and his seventh and final visit to Antarctica in 1979 for the 50th anniversary of Byrd's flight over the South Pole in November 1929. On Byrd's expedition, Gould's first steps ashore in Antarctica were at Discovery

(Continued upper right)

Laurence Gould at McMurdo Station, Antarctica, his seventh and final visit to Antarctica, on the occasion of the 50th anniversary of Byrd's flight over the South Pole, November 1929. (Photo by James Collinson, 28 November 1979.)

Inlet on the Ross Ice Shelf, on 26 December 1928. On his return to "The Ice" 50 years later he told an interviewer that he "experienced a thrill almost physical; he had returned to his spiritual home" (p. 83).

It is fitting that Carleton College established the L.M. Gould Papers within the Carleton College Archives as a means of honoring its famous president and faculty member. A guide to the contents of the Gould Papers was under way at the time of writing of this review. This book also includes considerable detail about Gould's personal life — his marriage to Peg, the love of his life, and also his "retreat" in the Jackson Hole area of Wyoming. The 27 chapters include numerous black-and-white photos that provide further information, starting with a family picture on p. 20, taken in 1899.

Known as "Mr. Antarctica" by many and also for his trademark red necktie (see Chapter 13: "Any Bright Color, So Long as It is Red") his illustrious career ended with his passing on 25 June 1995.

The best way to recommend this book to readers is to suggest they start at the beginning and go through all 658 pages until finished (it is difficult to put it down and continue later) or, alternatively, follow the chronological time periods listed in the Index, p. 649. The detailed index is especially helpful in finding events and the names of colleagues who were part of Gould's life. Comments and inquiries can be addressed to Eric Hillemann at Carleton College, Northfield, Minnesota 55057; ehillema@carleton.edu. ¶

Author Eric Hillemann was the Carleton College Archivist in Northfield, Minnesota, from 1990 to 2014, and is now Senior Associate in Archives. He received his masters degrees from the University of Wisconsin where he studied American History and Library and Information Science. He also coached the Carleton College Academic Quiz Bowl team which captured two national championships under his tutelage. His book on Laurence Gould is his first. ¶

Footsteps on the Ice: The Antarctic Diaries of Stuart D. Paine Second Byrd Expedition

by Stuart D. Paine

University of Missouri
ISBN 10: 0826217419
ISBN 13: 9780826217417

Reviewed by Cliff Bekkedahl

Eight long years I did a shout-out review of Stuart D. Paine's Antarctic diaries, entitled *Footsteps on the Ice,* that was edited by his daughter, APS member Merlyn L. Paine. This splendid volume of Antarctic lore has been reissued in soft cover.

I started my review for the July 2007 issue by declaring, "What a guy!" and portraying him as the man you want "covering your six." No change—he's still the man. If you missed this book in 2007, it is now available in soft cover from Amazon or the University of Missouri Press (orders@press.uchicago.edu).

I'm sure Merlyn will bring a couple of cartons to the November APS symposium, but don't wait. Get it now, for your own reading pleasure and as a perfect gift to a youngster in your life who, just out of high school or in college, may be wondering what the future holds for them. This book will move their needle!

Coincidence plain and simple, I had just finished wrapping up Bob Dodson's article "Crevasse!" for our January 2015 issue when Merlyn called to say that her publisher would be re-releasing *Footsteps.* I was instantly struck by some of the parallels in the two stories.

Stuart Paine was a young man with a good job in New York City in the early '30s, a time when not too many young men had good jobs, but he chucked it all and signed up with Byrd's second expedition as a dog driver, navigator, and radio operator. His adventures and the challenges presented by the fierce and unforgiving Antarctic environment — combined with a host of personnel problems; workmates who refused to carry their load; and equipment barely adequate to the task — revealed young Stuart Paine as a man of character and fortitude. He measured up, big time.

Are there still opportunities for adventure, for physical challenge, and for rewarding service without donning a uniform?

A year or so after the close of WWII, Bob Dodson and his sidekick, Pete Peterson — two young and aspiring meteorologists and members of the Finn Ronne Research Expedition — found themselves lodged in a one-tent encampment a mile high on a plateau 25 miles from the expedition base camp at Stonington Island in the Antarctic Peninsula. Their mission: Carry out meteorological observations and lay the base for a permanent weather station.

Horrendous winds impeded their climb to the observation site and, once there, they were confined to a tent in blizzard conditions. Howling winds and bitter cold took their toll. Bob and Pete took refuge in their sleeping bags and waited … and waited! Air rescue was out of the question, and they knew that eventually they would have to walk out. Whether they would do so successfully was the question.

Their tent, beaten by the relentless wind, finally unraveled. A walk-out was the only alternative. En route to the base camp, things happened which *The Polar Times* readers well know, and their story had a happy ending (though it was a close thing!).

The point is that, in the '30s, we had these daring young Stuart Paines; and then came WWII with a whole generation of our youth engaged in war. Soon thereafter came the Bob Dodsons and Pete Petersons — young, inexperienced, but yearning for adventure and purpose.

Today one can't help but wonder if Stuart, Bob, and Pete's spiritual descendants will follow or whether they have been weaponized into SEALs or Special Forces or some such. Are there still opportunities for adventure, for physical challenge, and for rewarding service without donning a uniform? Or have times changed irrevocably?

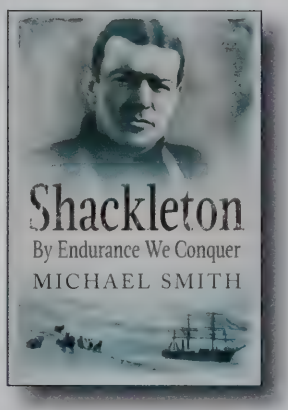
Whatever, *Footsteps on the Ice* is a great read, and a re-reading of "Crevasse!" in our last issue would also be time well spent by you and the youngster in your life. ¶

Shackleton's Journey

by William Grill
London/New York, Flying Eye Books, 2014, 68 pp., hard cover, $24.00
ISBN 978-1-909263-10-9

Reviewed by John Splettstoesser

This book on the subject of a classic Antarctic expedition is one of 10 *New York Times* Best Illustrated Children's Books of 2014. There is no shortage of books on the Shackleton expedition of 1914-16 and the ship *Endurance* crushed in the ice, the crew undergoing hardship at Point Wild while Shackleton went for help in the *James Caird*. The story in this book is told from beginning to end, but for a junior audience to couple events with illustrations by the author starting with the Shackletons moving from Athy, Ireland to Yorkshire to London. The story then jumps to Shackleton's challenge to raise money for the 1914-16 expedition, and then to recruiting candidates. Each crew member is pictured in colored sketches with their name and role on the expedition. Detail has gone so far as to show Henry McNish (misspelled as McNeish), with his cat, Mrs. Chippy, sitting next to him. Illustrator and author Grill weaves a detailed visual narrative of Shackleton's journey to Antarctica, with the format consisting of the use of colored pencils to portray the adventure and excitement that surrounds the expedition. Grill's drawings reproduce the smallest detail, including diagrams of provisions and individual drawings of each sled dog. The author has performed the magic of converting the historical information behind the expedition and then interpreting it for a young audience. Thirty-some chapters are listed on the Contents page, making it easy to find a specific part of the expedition and its colored sketches. The Ross Sea party is covered in the last two pages of the expedition events, and a two-page glossary includes terms easily understandable by the intended audience. The book is a perfect gift for a young audience that will inspire them to read lengthier and historical accounts of one of the more famous Antarctic expeditions that exemplifies leadership qualities in hardship situations.



Shackleton: By Endurance We Conquer

by Michael Smith

London, Oneworld, 2014

xi + 443 pp., $30.00

Reviewed by John Splettstoesser

It was only a matter of time before another book on Shackleton appeared, this one by a well-known author and journalist who specializes in the history of polar exploration. One reason for another book is the author's statement that a full biography had not appeared since Huntford's in 1985, and it was time to revive the significance of Shackleton's contribution to Antarctic exploration and the fame that resulted in literature that had become useful tools in academia and the business world for addressing audiences in business schools and MBA programs as a role model for leaders in difficult situations. Shackleton's leadership credentials are considered to be without dispute, even though his life in many respects was a failure in the business world that resulted in considerable debt.

William Smith's account of Shackleton relies on new books that have appeared in the past 30 years, plus diaries and correspondence regarding Shackleton and his close companions, and this book brings a fresh, 21st-century perspective to his adventures, and also untangles the myths from the reality of his life.

Another valid reason for another book can be attributed to several significant anniversaries about a century later of Shackleton's expedition with the ship *Endurance*, which left Grytiken whaling station, South Georgia, for the Weddell Sea on 5 December 1911, and a most joyous rescue of the men left behind on Elephant Island on 30 August 1916. The author's word choices for Shackleton and his ability to accomplish difficult challenges are given on p. 275 when Shackleton was at Grytviken for a month prior to leaving on 5 December. While exercising the dogs and restowing provisions and coal, "With his usual mixture of blarney and bluff, Shackleton somehow persuaded the locals to give him credit on a few useful supplies, including extra winter clothing, butter and flour. The bills, amounting to over £400, were sent to Ernest Perris, the expedition's agent in London, where they were placed on the pile of other invoices awaiting settlement." That says a lot about the man, whose primary objective was directed toward the expedition, without the consequences of getting further into debt. The intervening months and other details of Shackleton's life are well described in a total of 41 chapters, Notes, and a Select Bibliography and Index. Readers will find many familiar photos of Shackleton that have appeared elsewhere, and are incorporated in the text with the author's skill at providing an historian's viewpoint plus the suspense of *Endurance* in the Weddell Sea, hardships at Cape Wild on Elephant Island, the sailing of the James Caird to South Georgia, the hazardous walk across South Georgia to reach help, and the attempts later to rescue the 22 crew left behind at Cape Wild.

The parts of the expedition that survive into present time have included many re-creations by modern adventurers of the voyage of James Caird that carried Shackleton plus 5 men from Cape Wild to King Haakon Bay, South Georgia, in April-May 1916, as well as near-annual overland treks from King Haakon Bay to Stromness whaling station. The legend thus continues. I have experienced the feeling of hardship that the *Endurance* crew endured at Cape Wild for more than 130 days in 1916, setting foot many times on land, plus standing on the beach at King Haakon Bay where *James Caird* landed after its successful voy-

age to reach the safety of South Georgia. It is only fitting that fans of Shackleton should visit his grave in the whaler's cemetery at Grytviken, where his headstone dominates the others around him, with the grave of his faithful friend, Frank Wild, situated next to "The Boss." Readers of the many works about Shackleton must include this book in their libraries, partly as a refresher of the explorer who never lost a man under his direct command, and never accomplished anything he had set out to do in Antarctic exploration, this book is a vital record to fill in some gaps and remind colleagues what leadership is all about.

Antarctic Odyssey

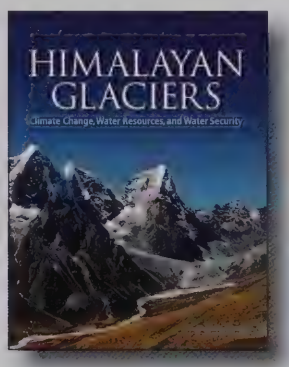
by Celia Edey
142pgs, 2008. PAPERBACK

Reviewed by Charles Lagerbom

For years after James Bisdee Malcolm Green went to the Antarctic aboard the RRS *Discovery II* in 1937-1939, his daughter and her siblings would carefully page through his two big black albums of photographs he had taken. But it was after his death that Celia Edey found a dusty box in the back of a cupboard that contained a small black hard-backed notebook, the daily journal he had kept for the first eight months of his voyage, including the seven-month circumnavigation of the continent in 1937-1938.

Along with the journal, she also found 250 original individual negatives carefully labeled and dated, many she had never seen before. Using a simple and small camera with no tripod, Green had made a photographic record of his adventure. He then developed each one in the ship's darkroom aboard the *Discovery II*. He also carefully pasted newspaper articles and clippings about the voyages. These showed the respect in which the *Discovery* expeditions were held and the excitement of these voyages.

Celia Edey has now taken all this material and put it all together in Antarctic Odyssey. Parts of the book are an exact copy of the diary, written in the vernacular of the time. Celia Edey made a deliberate decision not to "edit out" the sometimes non-politically correct words. She also found the many contemporaneous newspaper cuttings referring to incidents he wrote about in his diary. What emerges is a wonderful snap-shot of life aboard *Discovery* II in the southern oceans in the 1930s. All the original material is now housed at the National Oceanographic Institute at Southampton University, and they have digitized the diary itself. Ms. Edey has done us all a great service in preserving this eye-witness account of early 20th century Antarctic history and science.



Himalayan Glaciers: Climate Change, Water Resources, and Water Security

by National Research Council, Committee on Himalayan Glaciers, Hydrology, Climate Change, and Implications for Water Security
Wash., D.C., National Academies Press, 2012, paperback, 143 pp., $49

Reviewed by John Splettstoesser

A review of a publication without an obvious polar title or relevance for *The Polar Times* is not as much a change of subject matter as one might think. Glaciers are normally associated with polar regions because of climate, snowfall, and proximity to the two geographic Poles — South and North. However, a Third Pole ("Up") exists because of elevations above sea level that create what amounts to a polar climate, with low temperature, snowfall and the formation of glaciers. Himalayan glaciers certainly qualify for the Third Pole in that regard.

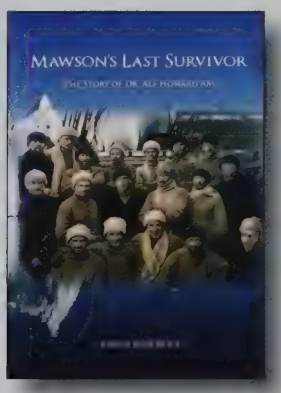
Because many glaciers around the world are receding, with different rates of timing of glacial wasting, the volume of ice melt that results is related to the release of meltwater that can affect areas where water supplies are a means of sustaining agriculture, among other things. This situation is described well in a review of the film "Glacial Balance" (see *The Polar Times*, January 2015, p. 32), where many areas of the Andes Mountains are affected by seasonal changes in precipitation and melting of glaciers, and an accompanying article that features glaciologist Dr. Lonnie Thompson (same issue, p. 12-13) discussing the situation of water availability in that area and how he got started on a lifelong career into ice-coring selected glaciers in the world for paleoclimate studies. His work extended into areas that include this part of Asia, with Figure 2.14 (p. 37) showing the locations of five ice-core studies in the Himalayas and the Tibetan Plateau, with perhaps more coring areas by Lonnie's team since this report.

Himalayan Glaciers is a report of a National Research Council Committee that discussed what the subtitle indicates – Climate Change, Water Resources, and Water Security. The glaciers in what is called the Hindu Kush-Himalayan (HKH) region extend over 2,000 km from east to west, spanning several countries with features among the largest and most spectacular in the world, and also the highest in the world, with Mount Everest at 8,848 meters. The region is also the source of large Asian river systems that provide water for more than a billion people. Because of the numerous cultures and populations in the HKH region, it is important to know the sensitivity of Himalayan glaciers to climate, the impacts of changes in climate and glaciers on the timing and volume of river flows, the water management systems in place to accommodate the populations dependent on successful agriculture, and prospects for conflict or cooperation and national security where competition for water availability can surface. Table 4.1 (p. 88-89) lists 23 examples of water conflict in the HKH region for the period 1970 through 2010, involving development disputes, terrorism and political issues regarding irrigation rights, and others.

An interesting sidelight to the subject of water rationing and efficient use of glacier meltwater is one of many in which local farmers and others in Ladakh, northern

India, and other locations, have built barriers on sides of hills shadowed from the sun to pond melt water from glaciers to let it freeze in winter to form artificial 'glaciers' that thaw in spring/summer to irrigate crops. This rather primitive method of the availability of water and its importance is realized from a population that relies on retreat of glaciers, flood incidence, monsoons, and changing seasonal climates in order to maintain crop sustainability.

The above objectives for the committee to deal with are described with recommendations listed in the Conclusion to the book. Numerous color maps and graphs are helpful in following the discussion on geography and other information on the region. An extensive list of references on p. 102-114 provides sources for much of the narrative content. The subject is of interest to a growing population of the public and specialists who follow the subject of climate change, which is discussed thoroughly in this book.



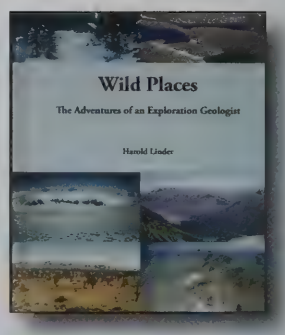
Mawson's Last Survivor: The Story of Dr Alf Howard AM

by Anna Bemrose
Brisbane, Australia, Boolarong Press, 2011, 250 pp., $32.95

Reviewed by John Splettstoesser

Alf Howard sailed with legends of the heroic era of Antarctic exploration and became a legend in his own lifetime. He was the last surviving member of Sir Douglas Mawson's 1929-1931 British, Australian and New Zealand Antarctic Research Expedition (BANZARE) and was also the last survivor to have served aboard the coal-fired three-masted wooden ship *Discovery*, built for Captain Robert Falcon Scott's 1901-1904 Antarctic odyssey. As a young chemist and hydrologist on board the *Discovery*, going south with Mawson was the catalyst for his long-distinguished career with the Commonwealth Scientific and Industrial Research Organisation (CSIRO). Subsequently, at the University of Queensland, he was awarded degrees in physics and linguistics and completed a PhD in psychology. For more than twenty years he designed computer programs and provided statistical advice to postgraduate students and staff at the University of Queensland in 2003 until he was 97. The call of Antarctica was too strong to resist and during the 1990s he returned four times. I met Alf first on a cruise from Fremantle to Antarctica in January 1993 when the chartered Russian icebreaker *Kapitan Khlebnikov* visited many locations on the coastline, including a view of Mawson's huts at Commonwealth Bay, where regrettably for Alf and others on board, a view was all we received due to the katabatic winds that the place is famous for. A helicopter ride to Taylor Valley (one of the Dry Valleys) was a treat for Alf and other passengers a few days later. In the 1996-97 austral summer, Alf was again on board for a complete circumnavigation of Antarctica, a 66-day voyage on the Khlebnikov that brought most everything that Antarctica had to offer--- emperor penguins, scenery, Australian and other scientific stations, and the opportunity for Alf to revisit Proclamation Island, BANZARE-claimed territory. The Proclamation of King George V Land was made on 5 January 1931, with Alf in the photo of that famous event (p. 141). Visits to Australian stations on the coast were a major treat for everyone, with a 'barbie' and home brew served to passengers, with the same statement from the station inhabitants – "Our home brew is better than the other Australian stations" (Mawson, Davis, Casey). New Year's Eve at Dumont D'Urville, the French Station, delighted the French and all of us on board. The book contains numerous passages from the logs of the *Discovery*, diaries of Sir Douglas Mawson, Captain John Davis, Frank Hurley et al, as well as from Alf's personal letters and records. The author, Anna Bemrose, is featured in a color photo on p. 250, where her credentials include Honorary Researcher in the School of English, Media Studies and Art History at the University of Queensland. She was fortunate in having many conversations with Alf Howard, which provide much of the background in this book, along with numerous photos of Alf in his worldly travels and other situations. The combination of the chapter contents, chapter notes (on p. 213 – 235), 4-page bibliography, and an Index make this a complete biography as is possible from her excellent research on this remarkable man. The author got to know him much better than I did on my cruises with Alf, and the book shows very well the association she had with Alf until he passed away at the age of 104 in 2010. The best way to find out more about the life of Alf as the last survivor of Mawson's expedition is to read the book.

John Splettstoesser, excerpts from Foreword by Tim Bowden, and my personal memories.



Wild Places: The Adventures of an Exploration Geologist

by Harold Linder
Anthem, Arizona; Castle Mt. Books, 2015, 456 pp., $40.00
ISBN 978-0-9752798-4-7, Hard cover

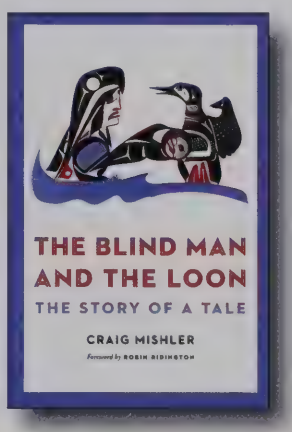
Reviewed by John Splettstoesser

This book is aptly named, for the author's 'Wild Places' have put him on all seven continents in the role of scientist, mineral prospector, Antarctic geologist and more in some of the remote wilderness areas of the world. The book is basically an account of his well-kept diaries through those many years of adventure, with the chapter titles putting a timetable on events: I. Boston, Massachusetts (1954-1958) (including a degree from MIT in Geology and Geophysics in 1958); II. Toronto, Ontario (1958-1960) (field work in Quebec, Maine, Australia, and Ontario); III. Minneapolis (1960-1966) (Ph.D. in Geology from the University of Minnesota, 1966) (diary events from Quebec and Antarctica); IV. Vancouver (1966-1978) (considerable travel and detail of the author's career as exploration geologist, mainly in Canada); V. Tempe, Arizona (1978-1994)

(contains details of significant exploration in areas of California, including success, as shown in Fig. 111, p. 411, with the author holding a gold bar produced from the Castle Mountain mine, California, April 1992). The story in those chapters is based on his diary, of commuting to work by canoe and snowshoe in northern Canada and by helicopter in Alaska, as well as his experience on a science project in Antarctica, which didn't start the way that was planned… more of that to follow. A thorough review of the book is an impossible task to cover highlights of the author's adventures, so I will concentrate on one of them I am familiar with.

I knew Harold Linder (or "Hal" to fellow students in the Geology Department at the University of Minnesota) from the years that both of us worked on science projects in Antarctica in the early 1960s. Hal was selected for a project headed by Dr. Ed Thiel, a geophysicist at the University, for the 1961-62 austral summer project on the Ross Ice Shelf, part of an overall study of the "ice budget" of Antarctica. The NSF-funded project was headed by Ed Thiel at the University of Minnesota, and Charles Swithinbank at the University of Michigan. The project was to determine the amount of ice flowing from the polar plateau to the Ross Ice Shelf through the large glaciers that cut the Transantarctic Mountains. Prior to joining his students (including Hal) on the Ross Ice Shelf Project, Ed Thiel was on a flight to Mirnyy Station (Soviet Union) and then Wilkes Station (Australia) for geomagnetic measurements, and was killed in a fire on takeoff from Wilkes on November 9, 1961, thus forcing a change in how the remainder of the field season would be conducted. Fortunately for Hal and Jim Olson, the other student hired by Ed Thiel, they both worked under the supervision of Charles Swithinbank for the remainder of the season doing pretty much what they were hired to do. Hal worked in parts of the TA Mountains that led to a significant publication on the geology of an area, published as a chapter in an American Geophysical Union book.

An audience for readers of Hal's book will be interested in how mineral deposits are prospected and discovered, along with the tedious lifestyle that it takes to live in remote areas under primitive conditions. Hal's diaries are especially detailed for his work in the Canadian provinces and California. The section on Antarctica (p. 162 – 219) will be familiar to anyone who has done field work there, and the detail of Hal's diary brings it alive. Two maps (p. 162-163) provide the background for the field areas where he worked. Following the season he returned to the University of Minnesota to pursue studies for his Ph.D. degree. His work in Antarctica earned him the geographic feature "Linder Peak" in the Heritage Range, Ellsworth Mountains, where more than a dozen features are named for University of Minnesota geologists who did pioneering work there in the 1960s. Because of the many geographic areas that Hal worked in during his career, the Index on p. 449-456 provides help in finding where he went and what he did. Numerous photos in color supplement the diaries. Geology students and graduates will find this book fascinating, as well as others who are intrigued by the adventures of living an active life outdoors.



The Blind Man and the Loon: The Story of a Tale

by Craig Mishler
Foreword by Robin Ridington
Lincoln, University of Nebraska Press, 2013, 246 pp., hardcover, $50

Reviewed by John Splettstoesser

Folktales are a common aspect of the culture of Northern populations, and this book has a tale that was researched by the author and goes back to 1827, tracing the story's emergence across Greenland and North America in a variety of sources, and is familiar to thousands of residents of the Arctic and subarctic. The text of the book, collected in the early 19th century by Moravian missionaries in northern Labrador, was never published until now, and was first handwritten in German.

The author is associated with the Alaska Native Language Center at the University of Alaska Fairbanks, and has published a number of other works on everything from Athapascan Fiddle Music to Square Dancing in Northeast Alaska and Northwest Canada. The seven chapters in this book are revealing in the evolution of the beginning of a tale, the story behind it, telling it, the art of the tale, and the power of the tale. Because of the manner in which tales are told and passed along through time, variations occur to describe local forms of a widely distributed folktale. Stories evolve and adapt to local conditions over time, a concept known by the term oicotype, coined by the Swedish folklorist Carl von Sydow (father of the actor Max von Sydow). Regional oicotypes of parts of the Canadian Arctic, Alaska, and Greenland are depicted in Map 1 on p. 9. Map 2 on p. 98 shows the Inuit communities in Arctic Canada with artworks depicting the folktale covered in this book, and some of these artworks are shown on pages in color and black-and-white.

The Blind Man and Loon is a Native folktale about a blind man who is betrayed by his mother or wife but whose vision is magically restored by a kind loon. As the story has traveled through cultures and ecosystems over many centuries, individual storytellers have added cultural and local details to the tale. The folktale was also known as "The Blind Boy and the Loon," "The Origin of the Narwhal," or "The Loon's Necklace," illustrating how permutations of this intriguing tale have circulated in small villages over a large part of Greenland, Canada and the United States in the form of at least 94 published oral variants, numerous unpublished manuscripts, recordings, a ballet, a theatrical concert, three films, and more, indicating how the story continues to renew and reproduce itself. Appendix B is an annotated bibliography of variants of the story. References on p. 223 – 237 provide further background on details in the text, and an Index provides leads to subjects discussed in the text.

The term anthropologist comes to mind when I highly recommend the book to those interested in reading it because of the history of just one tale and its time-travel through various cultures and geographies, starting with a general framework of the blind man and the loon, but taking on different content as it is passed along through time, presently about 200 years old and perhaps older. ¶

Ice Eagles

A film about aviation in Antarctica

by Tom Henderson

Much of what has been accomplished by the United States in Antarctica would not have been possible without aviation. The story of the men, women, and aircraft that have met the challenge of the most hostile environment on the planet will be documented in my new film, *Ice Eagles: An Account of American Aviation in Antarctica*.

This is my fifth film with an Antarctic theme and by far the most ambitious, covering from Admiral Byrd's first expedition in 1928-30 to the present day. I began researching and interviewing for the film in 2014 and will continue this phase through the end of 2015. I expect to release *Ice Eagles* in mid-2016.

By the end of the year, I will have interviewed over 60 pilots, air crew, maintenance specialists, builders, coordinators, scientists, and others with a connection to Antarctic aviation. I have interviewed persons from every American expedition starting with the 1939-41 United States Antarctic Service Expedition (USASE). Notable interviewees include the last surviving member of USASE, BMC Robert R. Johnson USN (Ret.), Robert Dodson who was a member of the Ronne Antarctic Research Expedition in 1946-48, and two members of the crew of R4D *Que Sera Sera* that made the first landing at the geographic South Pole, pilot LCDR Conrad "Gus" Shinn USN (Ret.) and plane captain CPO John P. Strider USN (Ret.).

I have accumulated a massive amount of archival film, photos, and documents from national repositories such as the National Archives, the Byrd Polar Archives, and the National Naval Aviation Museum and complemented this with numerous personal films, photos, documents and other material contributed by individuals interested in seeing this story told. A great deal of this personal material has not been publicly seen.

The local PBS television station in Albany, N.Y., has sent a letter of interest in broadcasting a version of this film when it is completed. Otherwise, it will be available through my business website, www.gwillow.com, where anyone can find more information on the film and follow its progress.

I am very grateful to all of the people whom I have interviewed and corresponded with for the making of this film. Almost without exception, they have been very open and sharing. The greatest joy for me in making *Ice Eagles* has been getting to know so many good people. ¶

OBITUARIES

Alberto Behar

Alberto Behar, a researcher with Arizona State University's School of Earth and Space Exploration, who was also employed by NASA's Jet Propulsion Laboratory in Pasadena, California, died 9 January 2015 at age 47 in an airplane crash after taking off from an airfield near Los Angeles. He was a pilot for the small aircraft he was in and for commercial aviation, and also a helicopter-flight instructor. His parents emigrated from Cuba to Miami, where Behar was born. He developed, tested, and deployed future planetary space craft. He received a Master's in electrical, computer and systems engineering at Rensselaer Polytechnic Institute, M.S. in computer science at the University of Southern California and a Ph.D. in electrical engineering at USC.

His contributions to the scientific understanding of the polar regions were varied and significant, focusing mainly on robotic systems for measuring ice sheets in Antarctica and Greenland. His National Science Foundation-supported research included developing new devices that allowed researchers to safely and cleanly explore subglacial lakes and underwater vehicles that measure ocean and ice interactions in the Amundsen Sea as well as the deployment of global positioning system sensors to measure ice-mass loss in Antarctica.

He personally designed and built many instruments and vehicles that have expanded understanding of extreme environments, including both polar regions, Alaska, Greenland, Deep Sea, and the Mars Rover. Behar and his brilliant engineering, which advanced polar research and his own passionate desire to explore the unknown, will be missed. ¶ **Modified from National Science Foundation, Division of Polar Programs.**

A.R.C. Butson

Dr. Arthur Richard Cecil Butson, GC, died in Hamilton, Ontario, on March 24, 2015. He was born of British parents in Hankow, China, on October 24, 1922. His father was a marine engineer, his mother an artist. Educated at Cambridge followed by medical school in London, in 1946-48 he was medical officer of the southernmost British Antarctic base at Marguerite Bay which happened to be adjacent to that of the American Ronne Expedition. He later became a Canadian surgeon. He published a book in 2010 about his time in the Antarctic, "Young Men in the Antarctic: A Doctor's Illustrated Diary (1946-1948)," reviewed in *The Polar Times*, July 2011, p. 30.

In the Second World War, while a medical student working with the Home Guard, he assisted in the rescue of victims from London bombing sites. Subsequently, while at Marguerite Bay, the team of which he was a member — Base E of The Falkland Islands Dependencies Survey (FIDS) — found a route suitable for dog teams over the 5,000 foot Graham Land Plateau on the Antarctic Peninsula and surveyed 1,000 miles of previously unmapped coastline.

Anyone who has shared a tent with him in the Antarctic, involving long night conversations, came away with the impression that here was a remarkable personality: soft spoken, modest, somewhat taciturn yet winsome, extremely courageous and endowed with a wry sense of humor. In a mimeographed background text entitled "Who's Who in Antarctica" wherein FIDS base personnel poked fun at themselves, Dick Butson wrote of himself: "Acquired his macabre mentality digging for stiffs in the Blitz." From an early age he had been exposed to other unusual and stressful situations: At the age of eight he had witnessed the beheading of a Chinese felon. In 1940, at eighteen while on holiday with his parents in southern France, to escape the

German invasion he joined a large group of British refugees crammed into a small British collier (coal-carrying ship, hence filthy) where, having medical background, he found himself assigned to the care of a group of hysterical passengers as the ship came under attack in the Mediterranean from an Italian submarine.

In July 1947 Dick Butson played a key role in the rescue from a crevasse of Ronne Expedition physicist H.C. (Pete) Peterson. For this he was awarded the Albert Medal which later became the George Cross, receiving the medal from Queen Elizabeth in July 1972, 25 years after the event. An article which appeared in *The Polar Times* issue of January 2015 recounts the story of this rescue.

In 1956 he emigrated to Canada to work as a surgeon, initially in Montreal and later in Hamilton, Ontario, where he joined, and eventually became a Colonel in, the Canadian Militia (Reserve) Forces, where he was medical officer of the Royal Hamilton Light Infantry Regiment. Eventually he became commanding officer of Hamilton's Militia Medical Company and was, in 1977–1979, honorary surgeon to the Queen in Canada. At one time he was chief of staff of St. Joseph's Hospital in Hamilton where he was head of general surgery for many years.

Along with FIDS veteran Kevin Walton, who had also won the George Cross for a crevasse rescue in 1946, Dick Butson attended biennial receptions at Buckingham Palace for holders of the Victoria and George Crosses. In the late 1980's the ridge between the McClary and Northeast Glaciers in Antarctica was named "Butson Ridge" in his honor.

Always an adventurer, Butson qualified as a parachutist at the age of 55. One winter, on Army duty, he commanded a Canadian field surgical team on Norwegian Army field exercise. As a hobby he raised Belted Galloway breed cattle on a farm outside Hamilton. A keen mountaineer, he climbed extensively in the Canadian Rockies as well as in the Antarctic, the Alps and on Baffin Island and at one time led a climbing expedition to the Hindu Kush in the Himalayas.

He met his wife, Eileen Callon, while she was working as a nurse in Hamilton. They were married in 1967. Their son, Andrew, followed his father into the militia. Daughters by a previous marriage, Sarah and Caroline are, respectively, a psychologist and an artist. His wife and children survive him.

All in all, Dick Butson was a quintessential adventurer, mountaineer, and explorer. Along with his friend Kevin Walton, who also had been born in Asia (Japan), he was a personification of the colorful Kiplingesque personalities so characteristic of the British Empire of their day. ¶ **Robert H.T. Dodson**

Bernard Fridovich

Dr. Bernard Fridovich (5 March 1931–9 September 2014), age 83, was born in Brooklyn, New York, graduated from the City College of New York, Officer Candidate School in Monterey, California, and earned a doctorate from the University of Maryland. He was an officer in the U.S. Navy who served in Antarctica during the IGY (1957–58). A renowned physicist, he was a Lieutenant and meteorologist based at McMurdo Sound where he wintered in 1957, when he was severely injured in a helicopter crash. He spent his career working for the government at the National Advisory Committee for Aeronautics (NACA), NOAA, and as a contractor for NASA.

Mount Fridovich (85°27'S, 148°12'W), north side of the terminus of Leverett Glacier and western limit of Harold Byrd Mountains, is named for him. ¶ **From *Capital Gazette*, 14 September 2014.**

Michael John Gilkes

Michael Gilkes, Consultant Ophthalmologist at Sussex Eye Hospital, U.K., 1957–1987, passed away on 22 December 2014, at age 91. He was educated at St. Edwards School, Oxford, before training as a surgeon at St. Thomas' Hospital. His first post was as Ship's Surgeon and Station Medical Officer for South Georgia Island and the Antarctic whaling fleet, starting at Leith Harbor Whaling station (1946–48), followed by Ship Surgeon on the whaling factory ship *Southern Harvester*. He later became house surgeon at Dreadnought Seamen's Hospital in Greenwich. His specialist interest, however, was in treatment of eyes, and he was a consultant surgeon at the Sussex Eye Hospital, Brighton, for 30 years, during which his duties took him to Iraq, Saudi Arabia and Pakistan as a visiting consultant and examiner. He had extensive yachting experience, taking part in the Transatlantic race in 1966. His experience at South Georgia, however, seemed to pave the way for repeated visits, for he and his wife Audrey booked passage on tour ships that brought him to Antarctica and several visits to South Georgia. Michael and Audrey were well known and popular on those cruises, both with sparkling personalities, and Michael's humor, knowledge of Antarctica, its wildlife, and geography. ¶ **John Splettstoesser (modified from *British Medical Journal*)**

Kenneth Leland Hunkins

Kenneth Hunkins was born 3 March 1928 in Lake Placid, New York, and died 2 September 2014, at age 86 in Tappan, N.Y. He spent his entire career at Columbia University's Lamont-Doherty Earth Observatory, with much of it on drifting ice camps on the Arctic Ocean. He earned a bachelor's degree in physics from Yale University in 1950, was a lieutenant in the U.S. Army in Korea, and earned a Ph.D. from Stanford in 1960. In 1957, when Ice Station Alpha was occupied 500 miles north of Alaska, Hunkins spent six months on it, again in 1958. He made the first photos of the deep ocean, finding marine creatures and sampling rocks and sediment from the ocean floor. He charted unknown mountain ranges in depths of 10,000 feet. Over a period of 18 months, Alpha meandered some 2,000 miles in a generally clockwise direction, ending north of Ellesmere Island, Canada. Alpha was abandoned in November 1958 as a result of the risk it imposed on breakup. He also worked on Fletcher's Ice Island in the 1970s and 1980s, helping run a series of other ice camps. He was awarded the American Polar Society Honorary Member medal in 2003. ¶ **From Lamont-Doherty Earth Observatory release**

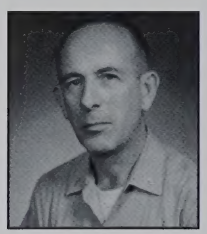
Conrad John Jaburg

Conrad Jaburg, Captain, U.S. Navy (Ret.) (1931–2015), died 4 March 2015 at the age of 83. After graduation from high school in Palm Beach, Florida, in 1949, and enlisting in the U.S. Navy, his flight training took him to the U.S. Naval Air Training Command, where he volunteered for duty in Antarctica in 1956. He was then assigned to VX-6 as a fixed wing and helicopter pilot, and along with 38 other military personnel and scientists built and manned Ellsworth Station during the first IGY program, where he wintered over. His later military career included two assignments in Vietnam in combat missions. During his career, Captain Jaburg flew more than 4500 hours and was awarded 19 medals and decorations. Jaburg Glacier is named for him at 82°42'S, 53°25'W, between

Dufek Massif and Cordiner Peaks, Pensacola Mountains. ¶ **Modified from *Pensacola News Journal*, 7 March 2015**

Pieter J. Lenie

Captain Pieter J. Lenie, 91, a 62-year resident of Brevard County, Florida, passed away on 1 March 2015. Lenie was born in Neil, Belgium, and became a Merchant Marine at the age of 14, rising to the rank of Captain. A master of many ships, his favorite command was as Master of the National Science Foundation's Antarctic research vessel R/V *Hero*, on which he spent 13 years exploring the Antarctic. He was not only Master of the *Hero*, but he was a master seaman of the Antarctic region, particularly the Antarctic Peninsula. "Lenie Passage" (64°40'S, 64°23'W) between the Gossler Islands and Joubin Islands, was first navigated in January-February 1973 by him and named for him. He transported large numbers of scientists to research locations on R/V *Hero*, and many have said that he and the ship are responsible for some of the most valuable research conducted by the U.S. in the Antarctic Peninsula. A U.S. field station on King George Island is locally named Pieter J. Lenie Base on Copacabana Beach, a short distance from the Polish station Arctowski.



Captain Lenie was a harbor pilot at Cape Canaveral and Jacksonville, Florida, recovering missiles and other debris during the early years of the space program at Cape Kennedy. He was also an accomplished pilot (Cessna to Lear Jets) and founding member of the Valiant Air Command in Tutusville, Florida, participating in many air shows around the U.S. ¶ **Modified from *Florida Today*, 5 March 2015**

Keith Shackleton

Keith Hope Shackleton was born 16 January 1923 and died at the age of 92 on 17 April 2015. He was related to the Antarctic explorer Sir Ernest Shackleton and was best known for his work as an artist, illustrator, and naturalist, primarily on wildlife subjects and landscapes from his experience in Antarctica and the high Arctic. He served for five years in the RAF in Europe and the Far East during WWII, was a skilled yachtsman, and gained fame as a lecturer on the naturalist team for many years on the ice-strengthened tourist ship *Lindblad Explorer*. My memories of him on that ship in the 1980s are of his lectures, which included drawing free-hand sketches on a chalk board of seabirds and penguins while he talked about them. In 2001, his book (with Jim Snyder) *Ship in the Wilderness: Voyages of the MS Explorer Through the Last Wild Places on Earth*, included his experience in the Arctic, Northwest Passage, and Antarctica, as well as other remote places. In 2008, he published a memoir, *Keith Shackleton: An Autobiography in Paintings*. ¶ **From *The Telegraph*, 29 April 2015, by John Splettstoesser**

Keith Shackleton (left) and John Splettstoesser on New Island, Falkland Islands, January 1984.

John P. "Phil" Strider

John P. "Phil" Strider, 85, of Shenandoah Junction, West Virginia, died 2 April 2015. He was born 18 March 1930 in Leetown, West Virginia, and retired after 26 years of service with the U.S. Navy. He was plane captain on the aircraft Que Sera Sera that was the first to land an aircraft at the South Pole, on 31 October 1956, and the first American (and the first person) to set foot on the Pole since Scott's polar party was there in 1912. As a crew member on the aircraft, he opened the cargo door after landing, stepped onto the surface and did what the job required: He placed pins in the landing gear, then lowered the ladder from the plane so that Rear Admiral Dufek could step down onto the snow. This historic flight and landing led to the construction of the U.S. station at the South Pole in the IGY.

Strider was interviewed by Tom Henderson shortly before Strider passed away, for Tom's proposed video on Antarctic aviation that will include numerous interviews with individuals connected to the U.S. Navy VX-6 and VXE-6 squadrons, made famous for the support of the U.S. Antarctic Program for many years.

While in the Navy, Strider also served in Korea. Strider Rock is named for him and is located at 78°02'S, 155°26'W, one mile northwest of Mt. Nilsen, Rockefeller Mountains, Edward VII Peninsula. ¶

Robert H. Thomas

On 2 February 2015, the passing of Robert H. Thomas, a glaciologist whose research spanned both polar regions and its ice sheets, was announced by his daughter, Clare. Thomas died in Poland (where he was with family members) as a result of strokes in January and earlier. Bob Thomas was born on 1 June 1937 in Hoylake, England, near Liverpool. With a degree in Physics, he was hired by the Falkland Islands Dependencies Survey (FIDS) as a meteorologist in 1960 and 1961, serving on Galindez Island, Argentine Islands, Antarctic Peninsula, where the British had a station (Base F). He was next hired by the British Antarctic Survey (successor to FIDS) in 1966-1967 and assigned to Halley Bay, Antarctica, a station located on the Brunt Ice Shelf. His research there led to major publications on studies of the dynamics and mass balance that involved locally grounded parts of the ice shelf buttressing ice streams flowing into it, a significant aspect of stabilization of marine ice sheets grounded below sea level. Current applications of his studies apply to the potential for the disintegration of the West Antarctic Ice Sheet. From his work on the Brunt Ice Shelf, Bob saw a relationship with the Ross Ice Shelf that a colleague, Terry Hughes, had published in a series of reports under the label 'ISCAP.'

Bob participated in the U.S. Antarctic Program in studies of the dynamics and mass balance of the Ross Ice Shelf by measuring strain rates and digging snow pits as part of a program called RIGGS — Ross Ice Shelf Geophysical and Glaciological Survey — which also included measurements of ice thickness along a grid of radar-sounding flight lines, with surface stations for seismic soundings. The program was based at the University of Nebraska-Lincoln, where Bob and his family lived at the time of RIGGS. Bob's next assignment was at the University of Maine in 1976 where he collaborated with Hughes on a number of glaciological projects related to his work on RIGGS and the Brunt Ice Shelf. While at Maine, Bob had a chance

to advise grad student Doug MacAyeal, who has been one of the most respected and recognized glaciologists of our time.

Bob, Terry Hughes, and others also collaborated on a project related to the calving of Jakobshavn Isbrae, Greenland, a major producer of icebergs in Baffin Bay and the North Atlantic Ocean as part of a project associated with the U.S. Coast Guard in its study of iceberg production and movement. The floating terminus of the glacier disintegrated rapidly in 2002, and Bob published the first theoretical study of the event in 2004.

Thomas left the University of Maine in 1980 and joined Jay Zwally's ice sheet satellite radar altimetry group at NASA Goddard Space Flight Center, Greenbelt, Maryland, in 1980, then was recruited by Stan Wilson (then manager of NASA's Oceans Program) to manage the polar oceans component of his program at NASA Headquarters, Washington, D.C., in 1983 to work on the glaciological programs that involved satellite remote-sensing technology coverage of the ice sheets in Antarctica and Greenland, and also polar sea ice coverage. The Program for Arctic Regional Climate Assessment (PARCA), begun in 1995, was the first comprehensive mass-balance study of the Greenland Ice Sheet. PARCA used synthetic aperture radar (SAR) and laser altimetry (GLAS) to measure changes in ice surface elevations, velocities, and grounding lines from Earth-orbiting satellites. In Antarctica, Bob enlisted the Chilean Navy for logistical support for a cooperative project with the Centro Estudios Cientificos de Valdivia (CECS: Center for Scientific Studies, in Valdivia, Chile) to help measure surface ice elevation changes using aircraft and satellite laser altimetry surveys where Pine Island Glacier and Thwaites Glacier enter Pine Island Bay in the Amundsen Sea.

When Bob took leave from NASA to spend nine months with his family in Poland in 1995, he recruited Sivaprasad (Prasad) Gogineni as the Polar Program Manager at NASA Headquarters. While serving at NASA, Prasad founded a Center for Remote Sensing of Ice Sheets (CReSIS) at the University of Kansas, where he was a professor in the Department of Electrical Engineering and Computer Science.

From a beginning of surveying and analyzing the small Brunt Ice Shelf at Halley Bay station, Antarctica, Bob Thomas went on to fund and personally lead the first accurate mass balance measurement of the entire Greenland ice sheet and the many physical properties contributing to its mass balance and to bring to bear the technological resources of NASA in studies of the entire Antarctic ice sheet. ¶ **John Splettstoesser and colleagues of Bob Thomas** (Editor's Note: An oral interview of Bob Thomas provides considerable detail on his career (www.aip.org/history/ohilist/33878.html). An obituary by the International Glaciological Society is at (www.igsoc.org/news/bobthomas/)

Malcolm G. Laird

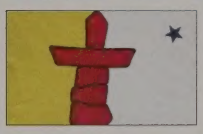
Malcolm G. Laird (1935-2015)—New Zealander and noted Antarctic geologist and explorer, principally of northern Victoria Land beginning in 1960, lasting until Ross Sea drilling program in 1999; and commemorated by features — Cape Laird, Laird Plateau — named in his honor. Born in Auckland; Oxford Univ. PhD, Geology, 1969; and geologist with NZ Geological Survey. Malcolm died 21 June of apparent heart failure while touring Machu Picchu with his wife, Margaret. He is survived by her and three daughters. He will be missed by all who knew him. ¶

John Weihaupt

John G. "Jack" Weihaupt (1930–2014) passed away at age 84 in Evergreen, Colorado, on 15 September 2014. He was born 5 March 1930 in LaCrosse, Wisconsin. He was a scientist, explorer, researcher, author, administrator, professor, military officer, and world traveler, with a spirit of adventure probably related to his heritage as a distant nephew (x4) of George Rogers Clark and William Clark of Lewis and Clark fame.

He attended the University of Wisconsin, where in 1952-53 he received a bachelor of science and a master of science degree in geology. Furthering his study, he earned a second master of science degree in geomorphology in 1972 and a doctorate in geophysics in 1973. With an ROTC commission as second lieutenant, he spent the period 1954-56 in Korea. He also held a commission as Captain in U.S. Naval Intelligence. He worked as an exploration geologist in Chile, followed by exploration and research in previously unexplored parts of Antarctica in 1959 as a member of the Victoria Land Traverse, involving 8 men from 4 countries on a 4-month, 2,400-km journey that resulted in discovery of new geographic features and the Wilkes Subglacial Basin, potentially the largest meteorite impact crater on the planet. His academic career included administrative positions and teaching at four universities, culminating in 1982 as Dean of the Graduate School and Vice Chancellor for Academic Affairs at the University of Colorado at Denver. He retired as Emeritus Professor at age 77 in 2007, but continued his research and writing. His publication record of more than 50 manuscripts includes books and journal articles. One of his last books, published in 2012, is about his Victoria Land Traverse in 1959–60. His last book, published in 2013 is about the mysterious discovery of Antarctica. Both of the above two books were reviewed in *The Polar Times*, July 2014, v. 3, no. 25, p. 33–34. Along with his many awards and medals, Mount Weihaupt, Victoria Land, is named for him. (One of the Outback Nunataks, at 72°37'S, 161°03'E.) ¶ **Modified from *Canyon Courier*, Evergreen, Colorado, 14 March 2015**

About Our Front Cover



Inukshuk (pl. Inuksuit), Cape Dorset, Baffin Island, Nunavut — Inukshuk means "likeness of a human," common in Canadian Arctic to signify that humans were there. They also mark trails, such as for caribou drives for hunters. Caribou would be driven toward an Inukshuk, but veer away from the human likeness, then take a side direction where hunters were waiting. (See book review "The Blind Man and the Loon" p27.) Shown here, the flag of Nunavut. It features an inukshuk (red color represents Canada) plus a blue star (North Star). Yellow background signifies earth, and white signifies sky. ¶ **(Photo by John Splettstoesser)**

Contents

APS President's Message 2
Membership Letter 2
American Polar Society Symposium 3
Scripps Institution of Oceanography 3
A Different Kind (CLERC) 4
In Our Midst 4
Due South 5
IMO Polar Code 8
Russia's Oblique Icebreaker 9
Polar Diplomacy 10
News From the Polar Archives 11
What's New on the APS Web Site 11
Antarctic Trip to Fulfill a Promise 12
A Polar Bear Observation 18
Polar Bears Won't Thrive on Land Food 18
Contaminants Also a Threat to Polar Bears 19
New Target for High-Tech Surveillance 19
Book Reviews 20
Ice Eagles 28
Obituaries 28

Fran Bayliss, wildlife photographer extraordinaire and long-time friend of the APS and *The Polar Times*, captured these dudes close up, and she swears she heard one say to the other, "We should head south to Scripps and the symposium! They're offering discounts for couples!" Fran adds that it was a windy day and polar bears often slur their words; but even so, the words "Scripps," "symposium" and "discounts" rang clear!

Give yourself a treat and Google up Fran at www.worldnaturephotos.net for more of her wonderful wildlife photographs.